

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—21ST YEAR.

SYDNEY, SATURDAY, SEPTEMBER 15, 1934.

No. 11.

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OBSERVATIONS UPON THE FRIEDMANN TEST FOR PREGNANCY.

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THE diagnosis of pregnancy in the early stages is a problem which must have perplexed every practitioner at some time or another. It is desirable, and at times essential, that the condition should be recognized as soon as possible, and, failing clinical certainty in the first few weeks, recourse has been made to various methods, both serological and those requiring animal inoculation.

Rationale.

The original animal test for early pregnancy as developed by Aschheim and Zondek is still the most accurate method at our disposal. The margin of error is in the vicinity of 1.5%. This test necessitates the use of five immature female mice (aged about three weeks) for each examination. Injections of the urine being tested are given to these animals in doses of 0.4 cubic centimetre subcutaneously twice daily for three days, requiring, therefore, thirty injections in all. Autopsy is performed at the end of one hundred hours and signs of ovulation are searched for. These, the presence of *corpora hemorrhagica* and *corpora lutea*, are the criteria of the presence of a living foetus in the case of the patient under examination. However, in abnormal conditions, such as hydatidiform mole and chorion epithelioma, positive results are also obtained, and it is well to remember that the test merely indicates the presence in the subject of living chorionic

epithelium, and that the most likely condition in which this is developed in an individual is pregnancy.

The basis of this method and of succeeding tests is that during pregnancy (and other conditions in which living chorionic epithelium comes into being) large quantities of the hormone of the anterior pituitary gland are excreted in the urine. This hormone, when injected into certain immature female animals, causes rapid maturation of the follicles and ovulation. The occasional presence of folliculin in the urine of a normal female is not a source of error, as this hormone merely stimulates uterine growth and does not affect the process of ovulation.

Whilst working on this subject Friedmann⁽¹⁾ showed that the injection of urine containing this anterior pituitary hormone produced in twenty-four hours, in the ovaries of immature rabbits, changes exactly comparable to those in mice. A clinical test has been devised around this fact and was reported upon in 1931 by Schneider.⁽²⁾ This modification of the Aschheim-Zondek test has the advantages of economy of material (only one rabbit being required), ease of method (only one injection being made), and considerable saving in time. On the score of accuracy the extended Aschheim-Zondek test is probably the more reliable, but positive results with the Friedmann method are always reliable.

In the Pregnancy Diagnosis Station at the Macaulay Laboratory in Edinburgh, these two tests have been utilized over a fairly large series of cases, approximately fourteen hundred per year. It has been shown there that the Friedmann error is consistently about 2.5% (2.41% to 2.6%), all being false negatives. The extended Aschheim-Zondek reaction applied to these negative cases can reduce this error to 1.5%, but no further. A positive Friedmann reaction is conclusive, but when a negative result is obtained in a case with a suspicious clinical history, the Aschheim-Zondek test is carried out for confirmation. Wiesner,⁽³⁾ the director of the station, points out that a number of the cases which give a negative response when the clinical signs of pregnancy are elicited have later terminated in abortion. He considers that in cases in which a negative diagnosis was returned, although the clinical symptoms suggested pregnancy, the prognosis for the uneventful termination of that pregnancy does not appear to be very favourable. He also states that a negative result may be obtained in the presence of clinical signs of pregnancy where the fetus has died *in utero* but has not been expelled. This, as will be seen later, is different from Schneider's experience. From our clinical investigations we are quite satisfied that this statement is correct (*vide* Cases LXII and XCIII).

Technique.

An unmated doe between twelve and sixteen weeks old is selected. The age of the rabbit is important. It does not go into heat until about six months old

and does not ovulate unless copulation has occurred—there is no regular cycle in the rabbit.

By using immature does, which are carefully segregated before and during the test, the possibility of ovulation from untoward causes is eliminated. Schneider pointed out that the use of rabbits less than twelve weeks old is liable to give erroneous results, and thus we have confined our tests to animals in the twelve to sixteen weeks group.

A specimen of the morning urine, passed into a clean vessel without sterile precautions, is forwarded to the laboratory. If it is necessary that some time should elapse before the specimen can be used, for example, if the specimen is sent from some distance, a tablet of tolamine prevents undue bacterial activity and does not affect the hormonal content of the urine. It is, however, desirable that the specimen should be used as soon as possible after collection.

Seven cubic centimetres of this urine are injected into the marginal vein of the ear of the rabbit. The animal is usually little affected, although we have had two cases of sudden death immediately following the injection in our series. Autopsy is performed in thirty-six to forty-eight hours, although it can be done earlier in very urgent cases. Macroscopic inspection of the ovaries allows an exact diagnosis in every case.

A negative result is one in which the ovaries remain small, white and opaque. With a positive result there is generalized engorgement of the internal genitalia with numerous dark *corpora hæmorrhagica* in each swollen ovary. A peculiar reaction, in which the ovary enlarges and becomes almost translucent, showing numerous small follicles without definite *corpora hæmorrhagica*, is undoubtedly negative. An exact diagnosis is possible with the aid of this test as early as ten days following a missed period, corresponding to a gestation period of about three weeks (*vide* Cases L, LX and XC).

In considering doubtful reactions, a positive report must be given even if there is only a single small *corpus hæmorrhagicum*. It will therefore be seen that positive reactions vary from one small blood follicle to diffuse bilateral ovarian engorgement with many large follicles. Another type of positive reaction is one in which a single large follicle is produced in which the walls are hæmorrhagic although the contents of the follicle are clear. It will thus be seen that any case in which hæmorrhagic follicles are produced in the ovary warrants a positive report.

Material.

The majority of the patients who are the basis of this report have been under our care in the gynaecological department of the Alfred Hospital. Additional specimens from several unusual and interesting cases have been received from other hospitals and from private practitioners who have applied to have the test performed for their patients.

We have endeavoured to limit the test to patients in whom a reasonable clinical doubt as to the diagnosis existed, with the result that the attached table of cases shows few further advanced than three months' gestation.

Discussion.

With regard to the duration of the positive reaction following delivery, Schneider showed that in seventy-two hours every patient examined gave a negative finding. In cases of incomplete abortion or death of the *fœtus in utero*, however, the reaction remained positive, showing that in all probability the anterior pituitary hormonal response is evoked by the presence of chorionic elements in contact with the maternal tissues. This statement concerning the result of the test in the case of the death of the *fœtus in utero* should be compared with that of Wiesner (*vide supra*).

We are constantly endeavouring to obtain specimens from patients suffering from hydatidiform mole or chorion epithelioma. The hormonal secretion in these cases is enormous and positive reactions can be obtained even after the urine has been diluted with normal saline solution to 1 part in 100, seven cubic centimetres of this diluted urine being then injected in the usual manner. This is not only of diagnostic value, but of great prognostic aid as well. In the case of a hydatidiform mole the positive reaction with urine diluted to 1 part in 50 will rapidly disappear after evacuation of the uterus, and at the end of eight weeks there should be a negative result to a test performed with undiluted urine. Should this reaction be returned as positive, and if a positive reaction is again obtained with urine diluted to 1 part in 50, the patient has developed chorion epithelioma. It will therefore be seen that this test is of the greatest value in following the progress of patients who have suffered from the formation of a hydatidiform mole.

In cases of definite chorion epithelioma which have been subjected to operation or radiotherapy, the application of this test will supply definite evidence of the success or otherwise of the treatment instituted. It is suggested that in the after-care of these patients this test should be performed at intervals of about three months. A positive reaction at any time during this period is of the gravest significance. As examples Cases XXXVII, XXXIX and LXXIV will be particularly considered. In Case XXXVII the negative reaction obtained when urine was used which had been diluted to 1 part in 50 with normal saline, excluded the presence of a hydatidiform mole in spite of a suspicious clinical history. In Case XXXIX the negative result obtained when undiluted urine was used for the test eliminated the diagnosis of chorion epithelioma, despite the suspicious microscopic picture.

In Case LXXIV the positive result when undiluted urine was used for the test was of grave significance. As stated in the tabulated results, the pathologist could find only very small areas

of chorion epithelioma, which possibly accounts for the negative reaction when the urine was used diluted to 1 part in 50 for the test.

The two big clinical groups in which the Friedmann test finds its greatest value are in unmarried women who are extremely worried and anxious to learn of the existence of a possible cyesis as soon as possible, and in women at or about the menopausal age, in whom one finds irregular uterine enlargement or other pelvic masses, together with amenorrhœa of varying duration, when it is important to eliminate the question of pregnancy before coming to an exact diagnosis.

In this short series of 100 cases there have been two mistaken diagnoses, a figure which compares accurately with that of the Edinburgh station. Case XXXV was that of a patient whose urine was examined when complaining of amenorrhœa for six, eight and ten weeks, on each occasion with a negative reaction. A positive diagnosis made by physical examination on the occasion of the last test has since been confirmed. It would appear that in some individuals there is some abnormality in the anterior pituitary hormonal response and that the usual results are not produced when the urine is injected into the laboratory animals. Case LXXIII was that of a patient who appeared clinically and as a result of the test to be suffering from unruptured ectopic gestation. Operation, however, failed to confirm the clinical diagnosis, and a second test carried out shortly after operation gave a negative reaction. We are unable at present to understand how this occurred.

Tabulated Results.

In the attached table are set out the clinical and laboratory findings of one hundred cases in which we have recently carried out this test. By a consideration of the case histories we will show that the test has been of the greatest value in many cases. We would draw particular attention to Cases IX, XIII, XXXVI, XLVII, LI, LII, LIV, LIX, LXXIV, LXXIX and LXXXIV.

The clinical histories are not so full as we would wish in every case, but a number of these cases have merely been referred to us for the test and not seen personally.

CASE IX.—This is a typical case in which the great value of this test is apparent. It was impossible to arrive at an exact diagnosis by physical examination, yet the presence of an associated pregnancy had the greatest influence upon the management of the case.

CASE XIII.—Upon clinical investigation it appeared to us that the curettage performed upon this patient before she attended the clinic had failed to disturb a normal intrauterine gestation. With the aid of the test we were able to assure the patient that the reappearance of menstruation was merely a matter of time.

CASE XXXVI.—This patient was firmly convinced that she was pregnant and near term. The findings on physical examination were indefinite, and the test was applied to decide the question of the presence of early cyesis. The result obtained was quite accurate. The patient was suffering from an endocrine dyscrasia of the thyro-ovarian type.

FRIEDMANN'S TEST.

Number.	Age.	Presumptive Signs and Symptoms.	Clinical Diagnosis (if any).	Date.	Result of Test.	Confirmation.	Remarks.
1	18	Amenorrhoea $\frac{1}{12}$; cervix soft; uterus retroverted and enlarged.	Probable cystis.	31/10/32	+	Yes	
2	18	Amenorrhoea $\frac{1}{12}$; coitus $\frac{1}{12}$ previously; Montgomery's follicles present; uterus retroverted.	?	4/11/32	0	Yes.	
3	19	Admitted for operation; amenorrhoea $\frac{10}{12}$; uterus enlarged to corresponding size; cervix soft; denies possibility.	Cystis.	8/12/32	+	Yes.	
4	27	The possibility of cystis was considered 30/6/32; irregular periods occurred until 11/10/32; amenorrhoea for $\frac{1}{12}$ since then. Admitted to hospital with a provisional diagnosis of ? sub-mucous fibroid; diagnosed under spinal anaesthesia as normal cystis.	Cystis.	22/12/32	+	Yes.	
5	23	Amenorrhoea $\frac{1}{12}$; vaginal bluing present; Montgomery's follicles present; denies possibility.	?	22/12/32	+	Yes.	
6	24	For $\frac{1}{12}$ "off-colour", with hot flushes and palpitation; last menstrual period (one day only), 30/11/32; rounded mass present in the left fornix; admitted to hospital as ectopic gestation; laparotomy revealed normal cystis.	Ectopic gestation.	28/12/32	+	Yes.	
7	35	Miscarriage occurred 7/10/32, following which the patient complained of low backache for $\frac{1}{12}$; first seen 12/1/33, at which time the uterus was appreciably enlarged; no period occurred since 12/11/32.	Cystis.	16/1/33	+	Yes.	
8	38	Large uterine fibroid present extending to the umbilicus; amenorrhoea for $\frac{1}{12}$; morning sickness present; Montgomery's follicles present.	Fibroids with associated cystis.	24/1/33	+	Yes.	Confirmed by operation.
9	35	Irregular haemorrhage for $\frac{1}{12}$; no obvious breast changes; uterus markedly enlarged and irregular; the patient considers that she is pregnant; last perfectly normal period 16/11/32.	Fibroids and possibly associated cystis.	10/2/33	+	Yes.	
10	17	Periods always very irregular; amenorrhoea for the past $\frac{1}{12}$; uterus enlarged (about size of $\frac{10}{12}$ pregnancy); Montgomery's follicles present.	Cystis.	23/2/33	+	Yes.	
11	37	Amenorrhoea $\frac{1}{12}$; had been using contraceptives; no physical signs of pregnancy; cysio-phobia present.	Not pregnant.	23/2/33	0	Yes.	
12	44	Amenorrhoea for $\frac{1}{12}$; uterus appears to be slightly enlarged; no other physical signs.	Not pregnant.	25/2/33	0	Yes.	
13	29	One missed period $\frac{1}{12}$ before attendance; curettage $\frac{1}{12}$ before attendance; 1/3/33: uterus appears enlarged and softened.	Cystis.	2/3/33	0	Yes.	Normal menstrual period 14/4/33.
14	33	The patient is very obese; complaint of scanty regular periods; slight breast enlargement; uterus not enlarged; cysio-phobia present.	Not pregnant.	3/3/33	0	Yes.	
15	42	Amenorrhoea for $\frac{1}{12}$; patient very obese; uterus appears small and firm.	Not pregnant.	6/3/33	+	Yes.	Patient clinically pregnant 21/4/33.
16	25	Amenorrhoea for $\frac{1}{12}$; Montgomery's follicles present; some clear fluid in the breasts; uterus slightly enlarged.	Probable cystis.	28/3/33	0	Yes.	Normal menstrual period (four days) 10/4/33.
17	34	Amenorrhoea for $\frac{1}{12}$; married for 34 years; no previous pregnancy; Montgomery's follicles present; large irregular abdominal tumour extending to the costal margin; no fetal parts demonstrable.	Fibroids and possibly associated cystis.	12/4/33 24/4/33	Suggestive (corpora-lutea). +	Yes.	Confirmed by operation.
18	35	Amenorrhoea for $\frac{1}{12}$; married 54 years; no previous pregnancy; marked morning sickness; Montgomery's follicles present; uterus enlarged to the umbilicus, with multiple fibroids palpable on its surface.	Fibroids and probably associated cystis.	24/4/33	+	Yes.	
19	28	Irregular periods for the past $\frac{1}{12}$; $\frac{11}{12}$ before, period was $\frac{1}{12}$ overdue, and then commenced with clots; at the time of attendance the last normal period was $\frac{1}{12}$ before; marked morning nausea; vaginal bluing; uterus enlarged to the size of a tennis ball.	Cystis.	2/5/33	+	Yes.	
20	36	Referred to the clinic for test; provisional diagnosis: ? abdominal tumour; ? $\frac{1}{12}$ pregnancy.		2/5/33	+	Yes.	
21	35	Marked cysio-phobia; periods always irregular; last period (scanty) occurred $\frac{1}{12}$ before; no physical signs of pregnancy.	Not pregnant.	5/5/33	0	Yes.	
22	23	For the past $\frac{1}{12}$ recurrent attacks of pain in the right iliac fossa; have been worse recently; last normal menstrual period 9/4/33; uterus soft and slightly enlarged; Montgomery's follicles present.	Cystis.	13/5/33	+	Yes.	

Weeks and months expressed as a fraction of a year.
+ = Positive. 0 = Negative.

FRIEDMANN'S TEST.—Continued.

Number.	Age.	Presumptive Signs and Symptoms.	Clinical Diagnosis (if any).	Date.	Result of Test.	Confirmation.	Remarks.
23	33	Chronic pain in the pelvic area; menses usually irregular; amenorrhoea $\frac{7}{12}$; uterus softened and enlarged; Montgomery's follicles present; recently some brownish leucorrhoea.	Cyesis.	13/5/33	+	Yes.	
24	38	Marked cyesiophobia; menses regular; some enlargement of the breasts; no other physical signs of pregnancy.	Not pregnant.	18/5/33	O	Yes.	Dilated follicles present in rabbits' ovaries on both sides.
25	29	Amenorrhoea for $\frac{4}{11}$; scanty period 1/5/33; Montgomery's follicles present; uterus softened and enlarged; profuse leucorrhoeal discharge.	Cyesis.	20/5/33	+	Yes.	
26	40	Complaining of severe headaches and hot flushes; amenorrhoea $\frac{7}{12}$; uterus considerably enlarged; no other physical signs of cyesis; youngest child 11 years old.	Probable cyesis.	25/5/33	+	Yes.	
27	41	Amenorrhoea for $\frac{7}{12}$; no other symptoms; uterus not enlarged.	Probably not pregnant.	27/5/33	O	Yes.	
28	36	For the past $\frac{7}{12}$ irregular vaginal haemorrhage; swelling of the abdomen for the past few weeks; uterus enlarged and softened.	Probable cyesis.	27/5/33	+	Yes.	
29	45	Amenorrhoea $\frac{4}{11}$; menses previously quite regular; no clinical signs of cyesis; no menopausal symptoms noted.	Probably menopausal.	27/5/33	O	Yes.	
30	16	Amenorrhoea $\frac{7}{12}$; no physical signs of cyesis; coitus $\frac{4}{12}$ before.	Probably not pregnant.	5/6/33	O	Yes.	Rabbits' ovaries showed marked hyperemia.
31	27	Very obese; amenorrhoea $\frac{7}{12}$; marked morning sickness; a few Montgomery's follicles present.	Probable cyesis.	5/6/33	+	Yes.	
32	50	Very obese; amenorrhoea for $\frac{4}{11}$; previously quite regular; uterus enlarged, firm and regular (about the size of $\frac{10}{12}$ gestation); no other physical signs.	Probably not pregnant.	15/6/33	O	Yes.	
33	28	Amenorrhoea $\frac{4}{11}$; Montgomery's follicles present; uterus enlarged to the size of about $\frac{10}{12}$ gestation; denies possibility.	Cyesis.	21/6/33	+	Yes.	
34	23	Last normal menstrual period 10/5/33; periods usually very irregular; no clinical signs of cyesis.	Probably not pregnant.	21/6/33	O	Yes.	
35	32	Irregular menses for the last $\frac{9}{12}$ (twice $\frac{3}{12}$ overdue); no physical signs of cyesis detected.	Probably not pregnant.	24/6/33	O	No.	
		10/7/33: Still has amenorrhoea; marked cyesiophobia; now $\frac{9}{12}$ overdue; no physical signs of cyesis detected.	Probably not pregnant.	10/7/33	O		
		17/7/33: Hysterical; still has amenorrhoea; on clinical examination uterus is now definitely enlarged and softened.	Now probably pregnant.	17/7/33	O		Reported 2/8/33 having aborted.
36	29	Last normal menstrual period April, 1932; missed the period in May; scanty loss in June, and for the last few months has been losing irregularly; thinks she is $\frac{10}{12}$ pregnant; no definite clinical signs, although the uterus may be slightly enlarged; X ray photograph negative.	?	8/7/33	O	Yes.	
37	27	Last menstrual period 9/6/33; for the past ten days has been nauseated and has had a brownish leucorrhoeal discharge; uterus enlarged to the size of $\frac{9}{12}$ pregnancy; has a slight haze of albumin.	? Hydatidiform mole.	15/7/33	+ (with undiluted urine). O (with 1-100 dilution). O (with 1-50 dilution). O	Yes.	Probable incomplete miscarriage.
				20/7/33	O (with 1-50 dilution). O		Mole definitely excluded.
38	42	Marked cyesiophobia; amenorrhoea of $\frac{4}{12}$; no physical signs of cyesis; last confinement twelve years previously.	Probably not pregnant.	17/8/33	O	Yes.	
39	29	Complains of irregular losing for the past month; uterus slightly enlarged; therapeutic curettage; histological diagnosis from scrapings—chorion carcinoma.	Probably incomplete miscarriage.	16/8/33	O (with undiluted urine). O (with 1-50 dilution).	Yes.	Excludes chorion carcinoma quite definitely.
40	29	Amenorrhoea for $\frac{7}{12}$; no physical signs detected; slight breast enlargement.	?	18/8/33	+	Yes.	
41	28	Amenorrhoea for approximately $\frac{2}{12}$; abdominal enlargement observed; provisional diagnosis: ? ovarian cyst, ? pregnancy.	?	21/8/33 25/8/33	Suspicious. +	Yes.	Single hyperemic follicle. A cyst together with $\frac{7}{12}$ pregnancy found at operation.
42	21	Denies any possibility of pregnancy; amenorrhoea $\frac{7}{12}$; cervix softened; uterus retroverted; no other physical signs.	Probably not pregnant.	21/8/33	+	?	Did not again report.
43	47	Last normal menstrual period 17/7/33; periods previously irregular; cervix softened; uterus does not seem enlarged; no other physical signs present.	Probably menopausal.	4/9/33	O	Yes.	

Weeks and months expressed as a fraction of a year.

+ = Positive. O = Negative.

FRIEDMANN'S TEST.—Continued.

Number.	Age.	Presumptive Signs and Symptoms.	Clinical Diagnosis (if any).	Date.	Result of Test.	Confirmation.	Remarks.
44	39	Amenorrhœa $\frac{7}{12}$; no definite physical signs.	?	4/9/33	+	Yes.	
45	47	Amenorrhœa $\frac{7}{12}$; uterus regularly enlarged, but not softened; no other physical signs.	?	13/9/33	O	Yes.	
46	28	$\frac{13}{12}$ before had last normal menstrual period; amenorrhœa then supervened for $\frac{7}{12}$ and a normal period occurred $\frac{7}{12}$ ago; the only child is $\frac{4}{12}$ old (breast fed); no definite physical signs; marked cyesiophobia.	Not pregnant.	19/9/33	O	Yes.	
47	19	Said to have been the victim of rape $\frac{7}{12}$ before; since then has missed one period; no definite physical signs; parents extremely worried.	Not pregnant.	19/9/33	O	Yes.	Normal periods commenced $\frac{7}{12}$ later.
48	26	Last child $\frac{7}{12}$ old, having been breast fed for $\frac{7}{12}$ only; commenced to menstruate $\frac{7}{12}$ after confinement for $\frac{7}{12}$ only; amenorrhœa since then ($\frac{7}{12}$); uterus possibly enlarged.	?	7/10/33	+	Yes.	Later aborted.
49	34	Amenorrhœa $\frac{13}{12}$; uterus the size of $\frac{7}{12}$ gestation and patient reports loss of blood per vagina.	Probable cyesis.	9/10/33	O	Yes.	
50	10	Coitus $\frac{7}{12}$ before; missed one period; no definite physical signs.	?	10/10/33	+		Patient did not again report.
51	31	Normal menstrual period 30/8/33; no loss again until 13/9/33, when a profuse hemorrhage occurred; therapeutic curettage 21/9/33. Pathological report: Decidual tissue, areas of hemorrhage and placental tissue showing marked cystic change; probably portions of early hydatidiform mole; examination ten days after curettage showed no definite abnormality.	Not pregnant.	24/10/33	O	Yes.	Excludes the presence of actively proliferating chorionic elements.
52	32	Under medical attention for threatened miscarriage $\frac{7}{12}$ ago; was informed that she had aborted; examination now reveals the uterus enlarged to about the size of $\frac{7}{12}$ gestation complicated by a right-sided pelvic tumour.	Cyesis.	6/11/33	O	Yes.	Operated upon 2/12/33 for right ruptured ectopic gestation (old standing, with much organized blood clot). Probably occurred in September, 1933.
53	28	Confinement $\frac{13}{12}$ ago; had a period $\frac{7}{12}$ ago; amenorrhœa since; still feeding baby from the breast; very anxious to know if pregnant again.	?	15/11/33	+	Yes.	
54	15	Said to have been the victim of rape; amenorrhœa for $\frac{7}{12}$; physical signs doubtful. Patient not seen personally at this stage.	?	27/11/33	+	Yes.	So strong as to suggest some abnormal condition. Very strongly suggests hydatidiform mole.
		Patient seen personally; clinically appears normal intra-uterine pregnancy.		2/12/33	+ (with 1-50 dilution).		
				8/1/34	O (with 1-50 dilution).		Probably correct.
55	43	Amenorrhœa for $\frac{7}{12}$; no definite physical signs elicited; patient very obese; referred for the test.	?	1/12/33	O	Yes.	
56	41	Last normal menstrual period $\frac{7}{12}$ ago; no other signs of pregnancy.	? Menopausal.	2/12/33	+	Yes.	
57	32	Irregular menstruation as a rule; no actual amenorrhœa; last normal period $\frac{7}{12}$ before; slight vaginal hemorrhage recently; no physical signs; morning sickness present; cyesiophobia.	Probably not pregnant.	6/12/33	O	Yes.	Normal period $\frac{7}{12}$ after the test.
58	46	Large soft uterine tumour present about the size of a $\frac{7}{12}$ gestation; discovered upon routine examination; menses said to be regular, though scanty.	Cyesis.	8/12/33	O	Yes.	Degenerated fibroid; treated by hysterectomy 17/2/34.
59	18	Possibility of conception $\frac{7}{12}$ previously; one missed period; some enlargement of both breasts; hymen intact; referred for test. Further test applied for; still amenorrhœa.	?	8/12/33	O	No.	Probably because of the age of the conception.
			Probable cyesis.	8/1/34	+	Yes.	
60	32	Married nine years; no conception had occurred; amenorrhœa $\frac{7}{12}$; only possible coitus 23 days previously; no physical signs present.	?	11/12/33	+	Yes.	Time relations very accurate in this case.
61	30	Referred for test as possible ectopic gestation.	? Ectopic gestation.	18/12/33	O	Yes.	
62	32	Examined 8/11/33; amenorrhœa for $\frac{7}{12}$; uterus the size of normal $\frac{7}{12}$ gestation; 22/11/33 lost brownish discharge; uterus now the size of $\frac{7}{12}$ gestation; 18/12/33 still losing; uterus still the size of $\frac{7}{12}$ gestation; os closed; 29/12/33 uterus still the same size; test now asked for; 23/1/34 uterus size of $\frac{7}{12}$ gestation; 14/2/34 miscarriage of a carneous mole occurred.	Death of the fetus in utero.	2/1/34	O	Yes.	Undoubtedly the fetus died in utero at the time of the hemorrhage, 22/11/33.
63	32	Menstruation regular until $\frac{7}{12}$ ago; $\frac{7}{12}$ ago intermittent hemorrhages occurred lasting two to three days, and accompanied by colicky abdominal pains; uterus enlarged and softened; small tender mass present in the right fornix.	Ectopic gestation.	6/1/34	+	Yes.	Confirmed by operation; leaking ectopic gestation removed.

Weeks and months expressed as a fraction of a year.

+ = Positive.

O = Negative.

FRIEDMANN'S TEST.—Continued.

Number.	Age.	Presumptive Signs and Symptoms.	Clinical Diagnosis (if any).	Date.	Result of Test.	Confirmation.	Remarks.
64	23	Amenorrhœa $\frac{1}{12}$; (no other history available); Referred for test.	?	13/1/34	O	Yes.	
65	34	Losing daily a small amount for the past $\frac{1}{12}$; desires to know if she is pregnant; no breast changes noted; uterus slightly enlarged; rounded tender swelling present in the left fornix.	?	15/1/34	O	Yes.	Probable chronic inflammatory mass in the pelvis.
66	42	Obese; amenorrhœa for $\frac{1}{12}$; Montgomery's follicles present; no definite physical signs elicited but patient is very difficult to examine.	?	9/2/34	+	Yes.	
67	22	Coitus $\frac{7}{12}$ before; amenorrhœa of $\frac{1}{12}$ duration; no clinical evidence of cystitis; cysiphobia.	?	12/2/34	O	Yes.	Period commenced three days after the test.
68	26	Amenorrhœa for $\frac{1}{12}$; few Montgomery's follicles present; no other definite physical signs.	?	12/2/34	+	Yes.	
69	37	Last normal period 15/10/33; on 9/2/34 commenced to lose freely; hæmorrhage continued for twelve days; examination at this time showed the os to be closed, with only slight uterine enlargement; loss continued for three days following test, and then ceased completely.	Miscarriage.	22/2/34	O	Yes.	
70	32	Last normal menstrual period 27/9/33; 21/2/34 commenced to lose blood per vagina; os still closed; temperature 100.4°.	Threatened miscarriage.	22/2/34	+	Yes.	Two weeks later a $\frac{1}{12}$ macerated fetus was expelled.
71	19	Married for $\frac{1}{12}$; last period lasted for two days only and concluded on 21/2/34; for the past 48 hours the patient complained of a pain in the right iliac fossa; on examination there appeared to be a rounded tender swelling in the right fornix; no other physical signs of pregnancy were elicited.	? Ectopic gestation.	24/2/34	O	Yes.	
72	38	Patient very obese; amenorrhœa for $\frac{10}{12}$; no definite physical signs elicited; referred for the test.	?	1/3/34	O	Yes.	
73	23	On 14/2/34, when $\frac{1}{12}$ pregnant, miscarriage occurred; curettage performed 18/2/34; normal convalescence; nine days following curettage the patient fainted and complained of pelvic pains; on examination a tender mass was noted in the left fornix.	Ectopic gestation.	28/2/34 10/3/34	+	No. Yes.	Operation failed to confirm the clinical diagnosis.
74	39	Last confinement ten years before; patient complained of vaginal hæmorrhage for $\frac{1}{12}$; thinks she may have just had a miscarriage; clinically and histologically chorionepithelioma of the cervix.	Chorion-epithelioma.	1/3/34	+ (with undiluted urine). O (with 1-50 dilution).		Very slight reaction in rabbits' ovaries.
75	40	Amenorrhœa for $\frac{1}{12}$; patient very obese; no definite physical signs.	?	1/3/34	+	Yes.	
76	36	Married for eleven years; during this time seven or eight conceptions had occurred, none of which had lasted more than $\frac{1}{12}$; general health good; now reports having had amenorrhœa for the past $\frac{1}{12}$; slight vaginal hæmorrhage occurred five days ago; injections of "Prolan" given with the intention of maintaining the pregnancy <i>in situ</i> .	?	3/3/34	O	Yes.	
77	44	Miscarriage said to have occurred $\frac{1}{12}$ before; uterus still enlarged; os closed; has had no hæmorrhage for the past $\frac{1}{12}$; the patient thinks that she is still pregnant.	?	18/3/34	O	Yes.	
78	19	Amenorrhœa for $\frac{10}{12}$; marked cysiphobia; no clinical signs detected.	?	18/3/34	O	Yes.	
79	52	The patient had a vivid dream $\frac{7}{12}$ months ago; since that time the periods, though regular, have been very scanty; the patient is convinced that she is pregnant; no physical signs elicited.	?	20/3/34	O	Yes.	
80	28	The last menstrual period occurred 3/1/34; the patient noticed a slight "show" three times in February and three times in March; on examination the uterus appears enlarged and softened.	Cyesis.	26/3/34	+	Yes.	
81	37	Amenorrhœa for $\frac{1}{12}$; the patient considers that she is pregnant; no definite evidence on physical examination.	?	28/3/34	+	Yes.	
82	42	Complaint of amenorrhœa of between $\frac{1}{12}$ and $\frac{10}{12}$ standing; patient referred for test; no further clinical details available.	?	29/3/34	O	Yes.	
83	40	Last normal menstrual period occurred $\frac{1}{12}$ ago; a slight "show" occurred $\frac{1}{12}$ ago; the patient has suffered from persistent vomiting for the past $\frac{1}{12}$; no definite clinical signs beyond a slight enlargement of the uterus.	Probable cyesis.	29/3/34	+	Yes.	

Weeks and months expressed as a fraction of a year.

+ = Positive. O = Negative.

FRIEDMANN'S TEST.—Continued.

Number.	Age.	Presumptive Signs and Symptoms.	Clinical Diagnosis (if any).	Date.	Result of Test.	Confirmation.	Remarks.
84	20	History of slight irregularity of the period—a few days' over time for the last $\frac{1}{12}$; menses becoming scanty; last period two days only; now has had amenorrhoea for $\frac{1}{12}$; patient not examined; clinician considers that amenorrhoea is glandular in origin.	?	9/4/34	O	Yes.	
85	32	Last normal menstrual period occurred 10/2/34; has not menstruated since; no definite physical signs discovered.	?	9/4/34	+	Yes.	
86	31	Last normal menstrual period occurred 24/2/34; a slight "show" was seen on 21/3/34; no further history or result of clinical examination was supplied.	?	9/4/34	O	Yes.	
87	29	Last normal menstrual period occurred 6/1/34; no further period until 18/3/34, when the loss was excessive. Since that date patient has had slight irregular hemorrhages; a few Montgomery's follicles are present; the uterus is slightly enlarged, and there appears to be a mass in the pouch of Douglas.	Possibly ectopic gestation.	12/4/34	O	Yes.	
88	20	Last normal menstrual period 10/2/34; no further loss until 2/4/34, since when the patient has had small hemorrhages daily; uterus appears to be slightly enlarged.	?	12/4/34	+	Yes.	
89		Amenorrhoea for $\frac{1}{12}$.	?	13/4/34	O	Yes.	Normal period occurred 18/4/34.
90	19	Amenorrhoea for $\frac{1}{12}$; coitus $\frac{1}{12}$ previously; no physical examination made.	?	18/4/34	+	Yes.	
91	28	Amenorrhoea for $\frac{1}{12}$; for the past week has had small intermittent hemorrhages.	?	19/4/34	+	Yes.	
92	33	Amenorrhoea for $\frac{11}{12}$; uterus enlarged and firm, giving the impression that there may be an interstitial myoma, and probably pregnancy.	Fibroids and probably pregnancy.	20/4/34	+	Yes.	Pregnancy definitely present.
93	33	Normal confinement 7/2/34; baby not breast fed; period occurred 8/3/34; amenorrhoea since that date; marked cyesophobia; no physical signs of cyesis elicited.	?	26/4/34	O	Yes.	
94	33	Menses ceased for the first time in the menstrual history in August, 1933; Montgomery's follicles present; morning sickness marked; reported for examination 12/4/34 on account of failure to enlarge; physical signs roughly those of a $\frac{1}{12}$ gestation.	? Dead fetus.	26/4/34	O	Yes.	A carneous mole was evacuated on 28/4/34.
95	23	Amenorrhoea for $\frac{1}{12}$.	?	30/4/34	O	Yes.	Patient menstruated $\frac{1}{12}$ following test.
96	24	Last normal menstrual period 28/1/34; on 25/3/34 slight hemorrhage occurred, which has continued irregularly up to the present; uterus is definitely enlarged; Montgomery's follicles present; no movements have been noted by the patient.	?	5/5/34	+	Yes.	
97	20	Amenorrhoea for $\frac{1}{12}$; marked cyesophobia; uterus appears small; no definite physical signs.	?	7/5/34	+	Yes.	
98	30	Patient suffers from exophthalmic goitre; periods regular until 21/3/34; since then has had amenorrhoea; clinical examination is negative.	?	8/5/34	+	Yes.	
99	32	Amenorrhoea for $\frac{1}{12}$; the uterus is definitely enlarged and irregular; no other physical signs.	? Pelvic tumour. ? Cyesis.	14/5/34	+	Yes.	
100	39	Amenorrhoea for the past $\frac{1}{12}$; no associated morning sickness, as in all previous pregnancies; uterus appears to be quite definitely enlarged; patient obese.	?	21/5/34	+	Yes.	

Weeks and months expressed as a fraction of a year.

+ = Positive. O = Negative.

CASE XLVII.—The value of the test applied to determine the presence of early pregnancy in cases of this type must be apparent. The amenorrhoea was undoubtedly psychic in origin. It was gratifying to be able to reassure the parents of this patient as to her physical condition.

CASE LI.—We considered that the application of the test in this case was desirable in view of the pathological report upon the uterine scrapings. The negative result excluded the presence of actively proliferating chorionic elements, which had been suggested by the microscopic examination.

CASE LII.—As suggested in the notes upon this case, there is no doubt that an ectopic gestation, which had terminated in tubal abortion, was causing symptoms when the patient came under medical attention some two months before we were asked to perform this test. The negative reaction prompted the investigation of the right-sided pelvic tumour by laparotomy, which resulted in the discovery of an old pelvic hæmatocele.

CASE LIV.—This is a most interesting case. The patient was not seen by us, but the positive reaction obtained with the first specimen of urine was so strong as to

suggest some abnormality. We obtained a further specimen, which caused a positive reaction after having been diluted with normal saline solution to 1 part in 50. We reported that it was quite possible that this patient had an early hydatidiform mole. A month later the patient reported at the clinic and the physical examination at that time disclosed a normal intrauterine pregnancy. The test repeated with urine diluted to 1 part in 50 now gave a negative reaction. It is possible that the extreme youth of the patient was the cause of the unusually powerful positive reaction.

CASE LIX.—The positive reaction usually develops within three weeks of conception. The "false negative" reaction seen in this patient is explained by the age of the conception at the time of the test—probably seventeen to eighteen days. In all cases it is wise to repeat the test in a month's time, when the physical signs suggest the presence of an early cyesis and the result of this test is negative.

CASE LXXIV.—Upon the physical findings in this case a diagnosis of chorion epithelioma was made, despite the fact that this patient had had her last confinement ten years previously. The pathologist was at first unable to find microscopic evidence of the presence of this tumour, but after repeated sections had been cut he discovered a small area which was apparently typical chorion epithelioma. As a result of our application of the test we were quite satisfied that if this tumour were present it was either very small or relatively inactive. Total hysterectomy has since been performed and the patient is at present clinically free from recurrence.

CASE LXXIX.—In this case there was a typical hysterical condition in which the negative reaction to this test was of the greatest moral value in convincing the patient that she was not pregnant.

CASE LXXXIV.—Although at times the clinician may be quite certain that the condition of amenorrhœa in a young woman is glandular in origin, it is of value to apply this test to exclude the possibility of pregnancy.

Conclusions.

1. The test as performed has shown itself entirely accurate within what are apparently physiological limits.
2. It is rapid and simple to execute.
3. It is valuable in the diagnosis of early pregnancy from other pelvic swellings with suggestive symptoms.
4. It should be of great value in following the course of cases of hydatidiform mole or chorion epitheliomata subjected to operation.

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THE CELL REACTIONS IN LYMPH NODES DRAINING SITES OF PRIMARY CARCINOMA: A PRELIMINARY CONSIDERATION.¹

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THE accompanying scheme implies a comprehensive investigation into: (i) the reactions of the lymph nodes draining the site of a primary carcinoma, (ii) the effects on the secondary lymph drainage of the primary carcinoma, and (iii) the reactions of lymph nodes to stimuli which are not in any way cancerous. This last set of reactions is to be used as a control, but, as this is only a preliminary consideration of the subject and as the investigation is by no means complete, the scope of this paper is necessarily limited.

The reactions of the primary lymph nodes to a carcinoma alone or to a carcinoma complicated by factors set out in the scheme may be reduced to: (i) the reaction of the lymphoid tissue proper, (ii) the reaction of the reticulo-endothelial tissues and cells in the lymph nodes, and (iii) the reaction of the fibro-cellular tissue within the lymph nodes. With this third reaction, which is purely local, we are not concerned at present.

When a focus of bacterial infection, staphylococcal or streptococcal, is established, the reaction includes: (i) an increase in the polymorphonuclear leucocytes of the blood, (ii) an accumulation of these polymorphonuclear cells at the site of infection, and (iii) an enlargement of the primary lymph nodes draining that site. If a blood count is done, an increase in these polymorphonuclear cells is found, proceeding to the focus of infection, where their function is to deal with the bacteria. The enlargement of the primary lymph nodes has nothing to do with the rapid production of these polymorphonuclear cells. This enlargement is due chiefly to proliferation and hyperplasia of: (A) the lymphoid tissue proper, and (B) the reticulo-endothelial cells lining the sinuses (referred to as "endothelial" in the scheme).

In the case of certain other more chronic lesions, such as may occur in syphilitic or tuberculous infections, we have another picture. The lymph nodes again enlarge, the blood picture again shows an increase of leucocytes, and a local accumulation of leucocytes takes place at the site of the lesion. But this time the leucocytes are not polymorphonuclear cells; they are lymphocytes—lymphocytes gathered round the margin of the lesion, lymphocytes passing through the blood stream to that lesion; and the enlargement of the lymph nodes is due again to proliferation and hyperplasia of: (A) the lymphoid tissue proper, and (B) the reticulo-endothelial cells lining the sinuses.

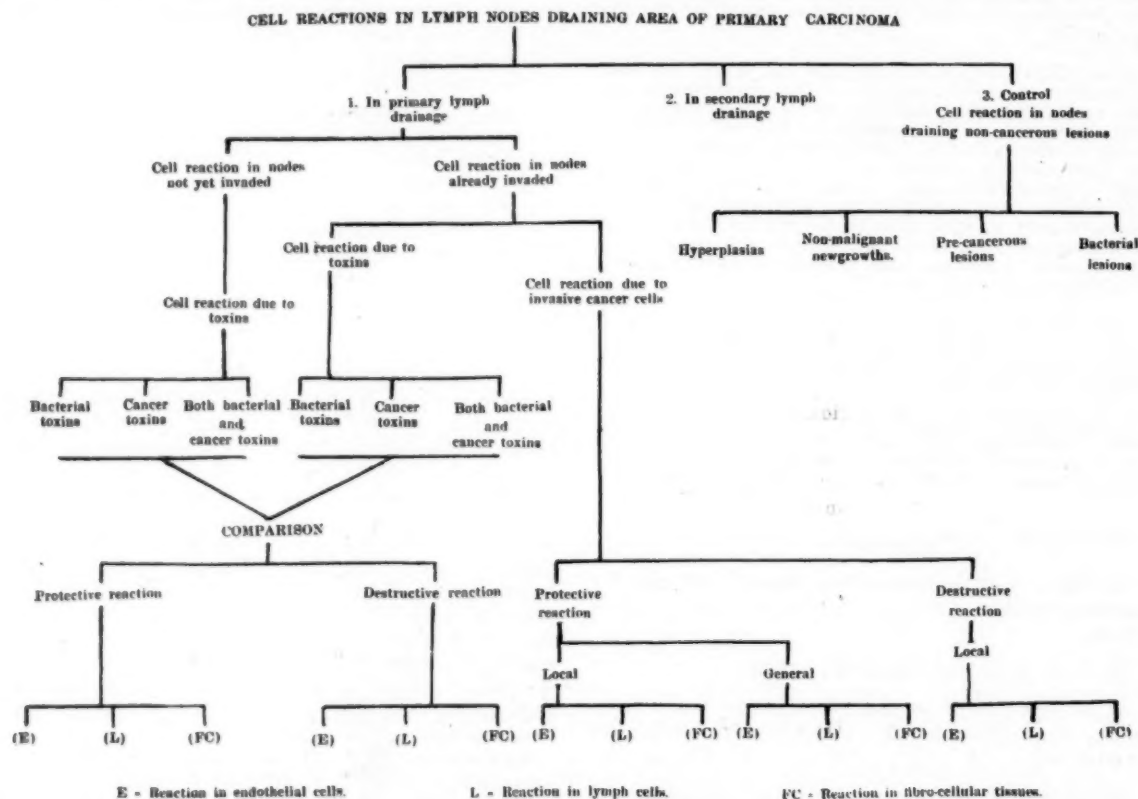
When a primary carcinoma appears, the advancing margin is surrounded by lymphocytes, the blood

¹ Read at the Fifth Australian Cancer Conference, Canberra, April, 1934.

picture shows no appreciable change, but the primary lymph nodes draining the site of the carcinoma enlarge; and this enlargement may take place before any invasion of the node by the cancer cells occurs. This leads to the supposition that the carcinoma is capable of liberating some stimulus which excites the lymph nodes to activity, and for want of a better name I have referred to this stimulus in the scheme as "cancer toxin". In common with the first two conditions mentioned above, the enlargement of the lymph nodes is again due to proliferation and hyperplasia of: (A) the lymphoid tissue proper, and (B) the reticulo-endothelial cells lining the sinuses.

draining foci of primary carcinoma both with and without associated ulceration and infection.

At this stage, though a discussion of the reticulo-endothelial system would be impracticable, there are certain points which should be noted. The reticulo-endothelial system embraces a wide variety of cells throughout the body which are united by three common characteristics: (a) their great capacity for taking up vital dyes, (b) their power of changing their form, and (c) in certain forms, their marked power of phagocytosis. Normally they consist principally of: (i) the specialized endothelial cells lining the sinuses of the lymph nodes, spleen *et cetera*; (ii) the histiocytes of the con-



This reaction of the reticulo-endothelial cells leads to the condition known as "sinus catarrh", in which the greatly dilated lymph sinuses are filled with large cells detached from the endothelial lining. It was formerly considered that sinus catarrh was to be classed with other forms of catarrh, in which damaged cells are thrown off and discarded, essentially a passive reaction. It is now, however, definitely established that sinus catarrh of the lymph nodes represents the activation and liberation of previously quiescent cells, constituting an active defensive reaction, a contradiction of what is implied by the term "catarrh". It is commonly present in lymph nodes draining infective foci, and we have observed it in many lymph nodes

nective tissues; (iii) the reticulum cells of splenic and lymphoid tissue; (iv) monocytes of the blood (though authorities differ on this point).

By a suitable stimulus these cells may become activated to form the macrophage or large phagocytic cell. The recent work of Cappel has confirmed the view that under certain conditions lymphocytes may also become transformed into macrophages, though not included in the reticulo-endothelial system. Macrophages may on occasion assume a comparatively quiescent and passive form as fibroblasts.

Thus in investigating the cellular reactions of the lymph nodes the following points are to be considered:

1. That the lymph nodes are the source of two types of cell (lymphocytes and reticulo-endothelial cells), each of which is known to play an important part in the defensive reactions against bacterial infection and, we believe, an equally important part in the defensive reactions against cancer.

2. That the lymphocytes at least are to be found in large numbers at the site of the primary carcinoma.

Muir says that the lymphocytic reaction round cancer cell masses is a defensive reaction. It restricts growth. Murphy has found that a general lymphocytosis is related to immunity, and also that a local lymphocytosis has an inhibitory action on carcinoma when it is transplanted at the site of the lymphocytosis. He has found also that in such cases destruction of the lymphocytes by X rays was followed by a disappearance of the resistance; and also that the production of a lymphocytopenia by damage to the lymphoid tissues by means of radiation or benzol lowers the resistance to transplanted growths. Ludford has shown that a lowering of this resistance can also be produced by blockade of the reticulo-endothelial system by dyes, apparently, according to Muir, by interfering with the supply of monocytes and lymphocytes.

In comparing the reactions of the lymph nodes in the three types of lesion mentioned earlier, it is worthy of note that in all three cases the lymph nodes show increased activity of both types of cell (lymphocyte and reticulo-endothelial). But whereas in the case of pyogenic infection there is an accumulation of polymorphonuclear cells both at the site of the lesion and in the blood, and no increase of lymphocytes, in the case of the tuberculous and syphilitic lesions there is an increase of lymphocytes both at the site of the lesion and in the blood. In contrast to these two, a primary carcinoma may be found surrounded by lymphocytes, but there is no appreciable increase of lymphocytes in the blood. Nevertheless the activity stimulated in the lymph nodes draining the site of a primary carcinoma is a defensive reaction, though the exact mechanism of this reaction is not known.

We do know, however, (i) that the endothelial cells lining the sinuses of the lymph nodes become transformed into one form of monocyte and thence into the macrophage, (ii) that the lymphocytes may also on occasion assume the form of macrophage, and (iii) that the macrophage may eventually take the form of fibroblast.

So that it is possible that the macrophages derived from both types of cell within the lymph nodes play some part in forming the fibroblastic defensive reaction at the site of the primary carcinoma, in addition to whatever defensive functions they perform within the lymph node.

We know that lymphoid tissue is one of the most sensitive of normal tissues to radiation, especially when it is in a condition of hyperplasia and proliferation. As the immediate lymph nodes draining the site of a primary carcinoma show the greatest hyperplasia, does it not suggest that they are the

chief source of the natural defence against the invading newgrowth, not only within their substance but also possibly at the primary lesion?

If that is so, should we not consider whether prophylactic radiation to these nodes could be applied in such a way as to get the maximum benefit without impairing their natural defensive functions?

RHEUMATOID ARTHRITIS, WITH SPECIAL REFERENCE TO THE ARTHRITIS CLINIC AT THE ROYAL NORTH SHORE HOSPITAL OF SYDNEY.¹

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BEFORE opening a discussion on rheumatoid arthritis I wish to express to you my sincere thanks for the honour of asking me to talk tonight.

Rheumatoid arthritis is one of the oldest diseased states of which there is any historical record, and has been the cause of suffering to man from time immemorial. In the past an arthritic's lot, like the policeman's, was not a happy one, and a feeling of discouragement has grown up in regard to the disease and an attitude of hopelessness is entertained even today.

Pathology.

Let us first of all consider the pathology of the condition. Proliferation is the characteristic pathological change in the rheumatoid type of the disease. The synovial villi increase in size and number, and the proliferation of the synovial membrane results in the formation of granulation tissue or pannus which extends over the joint cartilage and ultimately more or less completely destroys it. The joint cartilage may also be destroyed by an undermining upward growth of new granulation tissue formed by proliferation of the connective tissue of the epiphyseal marrow. At the same time new cartilage and bone may be laid down by proliferation of the perichondrium. Quite apart from pannus formation, adhesions may form between any portion of the proliferating synovial membrane and the articular cartilage, subdividing the original joint cavity into localized connecting cavities.

When the ends of two articulating bones are affected in this manner the apposition of the new tissue just described may result in an ankylosis, fibrous in nature, if there is predominance of synovial pannus, cartilaginous or bony in nature, if the endosteal or perichondrial changes are the greater.

Ætiology.

The question of ætiology is still in a state of flux and, to misquote Gilbert:

Orthopædic surgeons you might meet,
In twos and threes in every street,
Maintaining with no little heat
Their various opinions.

¹Read at a meeting of the Section of Orthopædics, New South Wales Branch of the British Medical Association, on September 22, 1933. Received for publication on July 23, 1934.

It is wise, I think, at present not to bury one's head in the sands of bacteriology to the extent of postulating specific organisms for the condition, although infection must be regarded as the most important cause in the great majority of cases. The idea of focal infection has been enthusiastically carried to extremes, and although at the present time more conservatism is being shown, yet there still remains an increasing host of unfortunates who are undergoing unnecessary mutilation, chiefly in respect to removal of teeth. It has been shown by Pemberton and others that many arthritics recover in the presence of demonstrable foci; and in some cases, after all the original foci of infection have been removed, successive foci, perhaps due to different organisms, have been seen to develop, thus suggesting a lowering of the normal defence mechanism as a whole. Thus focal infection may be the result as well as the cause of a systemic imbalance.

Bacterial allergy may be a factor in the aetiology, and the joints may become hypersensitive and react in an anaphylactic manner to toxins that reach them from some infective focus, even though the organisms or their products are in minute amounts.

Anything that interferes with the general health, such as fatigue, mental or physical strain, or an acute illness such as influenza, or exposure, may pave the way for rheumatoid arthritis. Constitution or diathesis, that is, the soil, must also be regarded as an aetiological factor.

Disturbances of metabolism, such as a lowered sugar tolerance, are probably due to a general deficiency of the oxidative processes of arthritic patients and are possibly secondary to the infection which causes the disease.

Symptomatology.

The onset may be abrupt or gradual and usually occurs before middle life in the moderately slender anatomic type of person, and the disease is at least three times as common in females as in males. The smaller joints of the hands and feet are generally first affected, particularly the proximal interphalangeal and the metacarpo-phalangeal articulations, and often the distribution is symmetrical. In the fingers there arises an enlargement, usually at the proximal interphalangeal joints, which may consist of only a slight thickening of the superficial tissues, or it may take a somewhat fusiform shape and, depending upon the acuteness of the arthritic process, this swelling may be accompanied by redness, pain and heat. Stiffness in bending the joint may be slight or considerable, in part due to the mechanical influences of the swelling, in part due to effusion within the joint, and to reflex muscular spasm, which is increased by attempts at movement.

Lateral pressure over the joint margins will nearly always elicit more or less tenderness and constitutes a useful way of determining the existence of active arthritis as contrasted with the pain and diminished function due to chronicity. Indeed lateral pressure may serve to call attention to the

existence of an early arthritis in a joint which the patient does not yet suspect of being involved.

Often the actual onset of the disease is characterized by a sensation of fatigue, and the patient may feel tired out in the morning even after having slept well.

Fever is not a common accompaniment of rheumatoid arthritis, though usually the pulse is rapid and unstable, with daily fluctuations. Secondary anaemia and achlorhydria are frequent findings.

If the disease is arrested in the early stages, the involvement of soft tissues subsides and leaves no obvious trace of its occurrence. More frequently, however, the disease persists for a longer period and deformities then develop. As the cartilage becomes destroyed, a slowly developing laxity of the joint takes place and subluxation may result. Pain and dysfunction cause limitation of movement and muscular atrophy is early and marked. Later, deformity develops, due possibly to the flexors, which are said to be more powerful than the extensors, overcoming their opponents, and possibly due to the adoption by the joint of the position of maximum comfort, and the deformity may become fixed by definite shortening of the capsule, ligaments and tendons. With the gradual advance of the processes just described movements of the involved joint become more and more limited and fixation may finally result.

With chronicity trophic changes occur, notably in the skin and nails. In the later stages of the disease, when the patient is more or less invalided, there may arise an oedema of the extremities due to the dependent posture of the limbs and to inadequate muscular contractions producing a peripheral stasis.

Pregnancy usually makes the rheumatoid syndrome less pronounced during the gestation, but after delivery the joints are frequently worse and show decided increase of bone atrophy.

X ray examination in the early stages reveals no bony or cartilaginous change. In the later stages diminished density of bone with a fairly regular outline and diminution of joint space or an actual ankylosis is seen.

Treatment.

Prevention.

No directly prophylactic procedures can be urged, but many important indirect measures against rheumatoid arthritis may be mentioned. People are beginning to realize more the necessity for a suitable diet and it is of greater importance that this diet should be qualitatively perfect in the earlier growing periods of life of the individual than at a later stage, since in early life dietetic factors control in a specific way the structure of developing tissues. In the adult, when the tissues are fully formed, the same dietetic factors, although they may result in ill-health, cannot obviously be as important as in the infant and adolescent.

McCarrison has found in his experimental work on animals that properly fed animals remain remarkably free from disease, while those that are

improperly fed may develop practically any known human ailment. McCarrison states that it is reasonable to assume that the human species is no exception to this rule and that many of the diseases to which man is erroneously supposed to be heir are the outcome of his unsuitable feeding.

In arthritis the teeth are an important site of focal sepsis. Bones and milk teeth begin to be formed long before the infant is born, and their proper structure in the early stages depends on a sufficient supply of the necessary chemical substances to the mother. If the mother's diet during pregnancy contains an adequate amount of vitamin *D*, and she exposes her skin to sunlight, and if cereals, which are not only lacking in vitamin *D*, but contain something, as strongly suggested by May Mellanby and Pattison, which interferes with the calcification process, are limited, then the child's teeth will be well formed and not so susceptible to dental caries. The permanent teeth begin to calcify at birth and this continues throughout adolescence, and during this period the diet should be rich in vitamin *D* and calcium.

May Mellanby and Pattison have noticed in their investigations that the teeth of rickety children are more liable to structural defects and caries than those of ordinary children, probably because of the deficiency of vitamin *D*. They also found that if the diet contained an adequate amount of this vitamin, and especially when at the same time the cereal was greatly reduced or omitted, then the incidence of caries was greatly diminished and carious areas even healed up. On the other hand, when the vitamin *D* content of the diet was low and the diet contained much cereal, the incidence of caries was very much increased. If cereals were contained in the food, then a much larger amount of vitamin *D* and calcium was also necessary to antagonize their effect.

Unfortunately cereals are cheap, easily stored and transported, and are therefore very common articles of diet, while the natural foods containing vitamin *D*, with which calcium and phosphorus are often associated, are comparatively expensive, and include egg yolk, milk, cheese, butter and suet. Cod liver oil and some other fish oils are the richest known sources of the vitamin, and it is present in fat fish, for example, herring, mackerel and salmon, and also in animal fats except that of the pig.

Interesting examples of the effect of correct dietary upon teeth are to be noted in the Eskimos and the inhabitants of the isolated island of Tristan da Cunha. There, people have teeth which are almost perfect, although the use of toothbrushes is unknown and rickets is a non-existent disease. The outstanding peculiarity of the conditions of life is that they are compelled by circumstances to exist on a cereal-free diet and a diet rich in vitamin *D*.

Vitamin *A* controls the structure of the gingival epithelium adjacent to the teeth as well as other epithelial tissues. If the mother's diet during pregnancy and the child's diet during development contain an adequate amount of vitamin *A*, then there

is considerably less tendency for the development of *pyorrhœa alveolaris* in later life. Sufficient vitamin *A* in the diet is also an important factor in raising the general resistance against infection.

The attention to tonsillar sepsis in the school medical service also seems likely to diminish the incidence of rheumatoid arthritis.

Care should be taken to see that the sites of dwellings are well drained, and that the dwellings themselves are not damp and that there is free access of air and sunlight.

Finally, arthritis units should be established either in general hospitals or in a separate institution for the purpose of research into the ætiology of the disease and observation of the relative and real values of methods of treatment.

General Treatment.

In treating the disease one has to maintain a broad-minded attitude. Many individual procedures have resulted in benefit to many arthritics. There has thus grown up undue enthusiasm in many instances for this or that method of treatment. But there is no single panacea in the treatment of arthritis, and any attempts to confine oneself to a single line of procedure is doomed to failure in all but a small proportion of cases.

Elimination of Sepsis.

No matter what view is held as to the precise rôle which sepsis plays in the disease, it is always desirable to eradicate it. The judicious removal of demonstrated foci is legitimate, but no arthritic should be subjected to the strain of tonsillectomy or wholesale teeth extraction or other operations without very clear evidence that the operation is necessary and that the foci themselves are not simply expressive of a lowered vitality for which there are other causes and which will disappear as the constitution as a whole rehabilitates itself. The operation and sudden lowering of resistance may be the last straw for the patient. Many times it is better to build up the general health first and so avoid the danger of doing real damage.

Mouth.—The teeth constitute the most important site of focal infection. Caries alone does not seem to be a factor of very great moment unless of extreme degree, producing infection of the pulp. The closed sepsis, especially that of apical infection, provides the purest culture of streptococci, and an "overload" on the one hand and weakened resistance on the other allow the poison to enter the circulation.

The open sepsis of *pyorrhœa* and gingivitis is prone to set up secondary foci in the tonsils and, when swallowed, by breaking down the gastric juice and causing achlorhydria and thus removing the acid barrier, to produce infection of the gall-bladder, intestines and appendix. So open sepsis may be a most insidious and potent predisposing cause of arthritis.

Suspicion should always be directed to any pulpless tooth. An X ray examination should be carried out in every case. The amount of infection adequate

to give systemic and remote consequences may be surprisingly small. Every pulpless tooth is a potential menace and even a normal skiagram, particularly in the upper molars, because of the difficulty in getting a three-dimensional X ray view, is not necessarily final. While it is necessary to sound a note of caution about wholesale or numerous extractions, it must be remembered that dentists are on the whole conservative, that one tooth with a hidden root sepsis left in the jaw may be quite sufficient to keep up a chronic arthritis, and that even in edentulous jaws infected roots may be left behind, and even when removal is complete a residual abscess is by no means rare; and there may be sepsis in connexion with unerupted wisdom teeth.

Throat and Nose.—Infections of the throat and nose are practically as important a source of focal sepsis as infections of the teeth. While a conservative attitude should be adopted as regards the removal of tonsils, yet, if they are removed unnecessarily, the patient is not left with a sense of deprivation and does not as a rule suffer from any disastrous consequences, since, unlike the teeth, they are apparently non-essential organs.

As regards the sinuses, the maxillary antra are the sinuses most frequently at fault. Infection should be removed from here as elsewhere, but a radical operation is such a severe procedure in otherwise normal individuals and when performed upon an arthritic may so further undermine his general health that a more and more conservative operative attitude has been gradually adopted. Antral infection is often difficult to diagnose. Radiography and transillumination are frequently misleading, and the only certain test in doubtful cases is that of antral puncture and bacteriological examination of the antral washings. The nasal sinusitis which acts as the focus of infection in arthritis is latent in a number of cases and gives rise to no local symptoms. It is believed that it is the slighter rather than the profuse purulent forms of sinusitis which are more likely to give rise to arthritis, probably because they are not accompanied by a protective leucocytosis.

Genito-Urinary Tract.—The third most important site of focal infection in rheumatoid arthritis is the genito-urinary tract. Infection of the genito-urinary tract is of less importance as an aetiological factor in women than it is in men, but it plays an important part in women in a sense other than infectious, probably because of an endocrine imbalance of the ovaries. The relation of such an imbalance to an arthritis is seen in so-called arthritis of the menopause.

In men the prostate is the chief seat of a genito-urinary focus, and the infection may be entirely non-venereal.

Gall-Bladder and Intestinal Tract.—Cholecystitis and cholelithiasis may be aetiological factors in arthritis and should be treated appropriately, provided that these procedures do not impose too great

a tax upon the general health of the arthritic patient.

In the alimentary tract, although the appendix and diverticuli are occasionally the source of the toxæmia, the area affected is generally much more diffuse, probably involving the greater part of the colonic mucosa. Constipation is a frequent accompaniment, and it is of the highest importance to note that marked stasis may exist in the presence of apparently adequate daily bowel movements.

These lesions of the caecum and the colon are similar to the changes found in experimental animals suffering from certain forms of deficiency disease; and Rowlands has produced dilatation of the colon in rats by restriction of vitamin B in the diet. It has been the experience of many observers that efforts directed at reducing the degree of retention of the contents of the colon may have beneficial results. Actual surgical removal of the colon in part or in whole, as advised by Lane, Rea Smith and others, may be followed by relief from the arthritic process, but it is an heroic method and should be rarely, if ever, resorted to.

In connexion with disturbances of the gastrointestinal tract, mention may be made of the frequency with which achlorhydria is encountered. When present, it demands the appropriate administration of dilute hydrochloric acid with the meals, and this may prove of great value, even though the digestion may not have been apparently at fault.

Vaccine Therapy.

The chief effort towards raising immunity in arthritis has been by means of autogenous vaccines prepared from cultures from such localities as abscessed teeth, enucleated tonsils, the accessory sinuses *et cetera*; but the results have not been encouraging, possibly because of the selection of unsuitable cases in which a removable focus is still unremoved or undrained, possibly because reliance has been placed on this form of therapy only, and possibly because it has been used too late in the disease, that is, at a stage when the joints are fixed and deformed by past inflammation.

But vaccine treatment can be of great value. It should be supplementary to drainage of the infected area, not a substitute for it, and it should never be used until the focus of infection has been removed as far as possible. The patient should be warned against quick results, and a course of at least three months of vaccine treatment is usually required. Overdosage with vaccine should be avoided by commencing with small doses, which are carefully increased. No reaction is sought for, and if reaction occurs the dose given has been too large. After an interval of six months a fresh course of vaccine treatment is sometimes indicated, if benefit has resulted from the first, to provide the patient with fresh antibodies.

Non-Specific Protein Therapy.

Non-specific protein treatment has been widely advocated, but the results have been disappointing. In some cases a definite temporary improvement

has occurred, and occasionally a brilliant result has been obtained, but this has usually been followed by a relapse to the former condition, and often the patient is left with a greatly weakened resistance.

Diet.

Pemberton has found that in 60% to 75% of arthritics there is a delayed rate of sugar removal from the blood after its ingestion by the mouth. He also states that it is certain that other substances also are not removed with normal rapidity and that glucose or carbohydrate is only one of a number of substances improperly cared for. The delayed rate of sugar removal grows less after recovery from arthritis whatever the treatment employed. It does so most abruptly, however, after the removal of a causative focus of infection, such as septic tonsils or abscessed teeth, and as a corollary to this it has been found that the occurrence of an inflammatory process, such as a sinusitis, may induce a delay in the rate of removal of sugar in a previously healthy subject with a normal sugar-disposing mechanism. A delayed sugar removal has also been produced in arthritis by interfering with the blood flow in the limbs by posture, the blood thus inadequately reaching some tissues. Vaso-dilator drugs can temporarily restore towards normal this delayed rate of removal in arthritis. Exercise, heat, massage also have as a rule a beneficial influence on this disease. Since exercise produces an acidosis, heat an alkalosis, and massage does neither, the benefits cannot be due to the chemical change. The only common factor with all these is their action upon the circulation, and thus apparently disturbance of the circulation constitutes part of the pathological deviation in arthritis.

Thus it is probable that the failure of metabolism in arthritis in dealing with the carbohydrates and other substances is due to a relative anaemia in the muscles, where the early stages of metabolism are carried out. This therefore constitutes strong evidence that reduction of food intake may importantly cut down the metabolic load on those structures. This reduction in food intake can be easily carried out if the patient is well nourished or a large eater, but in an underweight or emaciated patient the general health must be very carefully considered before any dietetic restriction is used.

In pyrexial cases the diet should be mainly liquid. It must be borne in mind that most patients with rheumatoid arthritis require a diet of high nutritive value, rich in vitamins. Any attempt to reduce the total calories should begin with the carbohydrates, since usually they constitute the bulk of our diet and not because they exercise a detrimental influence on arthritis *per se*.

Probably it is of next importance to reduce the proteins, but it is absolutely essential that the patient should receive his necessary quota of protein for wear and tear and the building up of new tissues.

Fats appear to offer the fewest disadvantages to the arthritic from the dietetic standpoint, and can

be used within limits to increase the caloric value of the diet to the desired level.

After the pyrexial period it is well to begin with a balanced diet, with meals of low caloric value but of sufficient size to give the patient the psychic satisfaction of eating, the necessity for mastication, the production of saliva and the creation of a mass to stimulate peristalsis. Thus vegetables play an important part in the diet because of their bulk. There is no evidence pointing to a systemic acidosis, so that "acid" fruits are not necessarily bad for the arthritic, and many of these "acid" fruits actually yield an alkaline ash. Fruit, particularly oranges and lemons, is an important article of diet, and should, with eggs, mammalian liver, young carrots (particularly raw in salads), green vegetables (raw when possible), milk and butter, form a considerable part of the food intake. Cereals should be strictly limited, not only because of their carbohydrate content, but also because of their probable action in interfering with the functions of vitamin D. Thus the amount of bread should be rigidly cut down to one slice of wholemeal of average thickness twice daily. As the arthritic condition improves, changes and additions can be made to the dietary, the additions being preferably in the form of extra fats, such as cream and butter, while cod liver oil is very useful as a means of supplying additional calories and affording vitamins.

Drug Therapy.

Many counter-irritants and embrocations have been used, but it is doubtful if any of them are of any real value except from a psychical point of view.

Arsenic is one of the most valuable medicinal agents in rheumatoid arthritis, particularly when there is an accompanying secondary anaemia. The best results are obtained by beginning with very small doses and slowly increasing them over a long period of time.

Iodine and its various preparations are of some value, especially when there are effusions, and probably act by stimulating the thyroid function.

Salicylates have no curative influence upon the well established rheumatoid condition, and their outstanding effect is their relief of discomfort and diminution of stiffness, if this is not due to ankylosis or adhesions. During the most satisfactory convalescence from rheumatoid arthritis exacerbations are encountered from a variety of causes, and these can be most happily met by the judicious use of salicylates and analogous drugs.

Cincophen or "Atophan" and its derivatives are popular, like the salicylates, because of their analgesic properties. They do not seem to have any direct effect on the final result and should be used under strict medical supervision, as on quite a number of occasions jaundice, with serious degenerative changes in the liver, has followed their indiscriminate use. If there is any doubt as to the suitability of the patient for this drug a Van den Bergh test should first be carried out. It is certainly wrong to persist in the use of the drug in the

presence of alimentary disturbances arising during the treatment.

Dilute hydrochloric acid in doses of four cubic centimetres (one fluid drachm) in water three times a day after meals is useful in those cases associated with an achlorhydria.

Cod liver oil is a valuable aid in rebuilding emaciated and anæmic rheumatoid patients, but its chief field of usefulness is in connexion with a restricted diet, the addition of it supplying extra calories and affording vitamins which may be more or less deficient in any reduced dietary.

"Radiostoleum", "VitaB", "Bemax" and other similar products containing high concentrations of vitamins are all particularly useful in the rheumatoid type of the disease.

Physical Therapy.

Physical therapy affords as a whole the oldest method of treatment of the disease and probably is of as much value in the treatment of rheumatoid arthritis as any other means at our disposal.

Of the various physical therapy procedures, such as massage, postural exercise as practised by the Goldthwaite school, ionization, heat, heliotherapy *et cetera*, I need not speak, except to draw your attention to a simple but very satisfactory home method of applying heat to an affected joint. Hot paraffin wax at a temperature of 48.8° to 77.7° C. (120° to 170° F.) is applied to the joint by means of a brush, layer after layer; a most pleasant sensation of warmth is enjoyed and, owing to the non-conducting nature of the wax, heat is lost very slowly. After half an hour or more the solidified casing is removed without difficulty. Lack of burning of the skin is due to the fact that a thin layer of air is entrapped between the wax and the body surface and that profuse sweating results as a further cushioning effect.

Surgical Treatment.

The deformities that occur in rheumatoid arthritis, particularly the more acute form, are primarily due to muscular spasm and to the adoption of the relief position. In the extremities the flexor group of muscles is dominant, assisted by the fact that slight flexion of the joints is also the position of rest and of ease; whilst in certain joints other deformities, such as abduction, adduction, or rotation may be superadded, due to spasm of other powerful groups of muscles. The deformity is always progressive because of the over-action of the stronger group, and later tends to become fixed, owing to actual shortening by scar tissue of the structures on the side of greatest contracture, particularly the joint capsule, ligaments and peri-articular tendons. In many cases intra-articular adhesions play an important part in this fixation by deformity.

It is generally agreed that no drastic treatment can be applied to the joints during the acute stages. Whilst activity is present, surgical treatment will be limited to the avoidance of contractures and to placing the joints in the optimum position should

ankylosis be imminent. When the disease has passed the very acute stage, passive movements should be carried out once daily and the individual joint should be moved only once. The extent of movement should be limited by the pain produced and increase of pain should be avoided. There is no object and much harm done in repeating the movement several times on the one occasion, the reason behind this mobilization in the subacute stage being to prevent further deformity, but not as yet to overcome that which may be already present, and if adhesions are present, gently to stretch them. While joints are moved traction should be exerted so as to separate as far as possible the articular surfaces. This results in more effective movement and much less pain is produced.

The next stage of the disease in which surgical measures may apply is the chronic stage. It is not always easy to settle when this stage has arrived, and the mere presence of pain and swelling in a joint is not necessarily a sign of activity, but may be due to adhesions, and the pain will disappear when these are broken down.

Surgical procedures undertaken at this stage have generally two main objects: (i) to correct the disabling deformity, (ii) to restore or retain movements at the affected joint. The means to these ends are usually: (i) manipulation under anaesthesia, (ii) graduated extension on splints or frames, (iii) open operation. Occasionally the object of the operation is to produce fixation, whether on account of severe pain or where ankylosis in good position is considered to be more functionally advantageous to the patient.

Of graduated extension on splints and frames there is little need for me to say anything.

The open operations employed are numerous, and I mention but two or three, such as synovectomy and removal of hypertrophied fringes, arthroplasty and posterior capsuloplasty, as examples. To quote the late Sir Robert Jones, much can be done for the apparently derelict, but surgery would not be needed, except in isolated instances, if early preventive treatment were employed.

Of manipulation I should like to speak more fully. Provided that the stage is at least one of quiescence, no fears need be entertained as to the advisability of cautious mobilization of the joints under anaesthesia. Full general anaesthesia is essential to obtain complete muscular relaxation. In minor degrees of deformity full movement can be often restored by one manipulation, but when the stiffness is more pronounced and when several joints are affected, more than one manipulation is necessary, lest the reaction resulting from the breaking down of the adhesions and the damage to the surrounding muscles which have suffered from contracture and loss of elasticity be too severe. This damage will be repaired by more fibrous tissue, and the second stage will be worse than the first. In these cases it is safer and better to proceed by stages, at intervals of seven to ten days, when the patient

can voluntarily and with comfort move his joint through the increased range.

Before manipulation one must always realize that there may be an extreme degree of osseous rarefaction, which will result in fracture if too much force is used.

A slight increase of pain commonly follows manipulation, but this gives place to greater comfort after the first day or so. A severe aggravation of pain denotes faulty technique. Active movements should be started as soon as the patient recovers from the anæsthetic, assisted, if necessary, by massage and passive movement, and should be carried out at least once daily. The masseuse should attend during the forcible manipulation of the joint, in order to have a clear picture of the degree of movement attained thereby. Vigorous active after-treatment is as important as the operation itself.

No doubt most of you have read the articles that have appeared in *THE MEDICAL JOURNAL OF AUSTRALIA* by Forbes Mackenzie, of Melbourne, on the deliberate opening of bone as a treatment for rheumatoid arthritis. He believes that the arthritis is a primary osteitis and that the joint manifestations are secondary to this primary bone condition, and he lays great stress on the thin, oily appearance of the bone marrow which flows from the openings made in the bone. But I am sure that you have all seen the same condition of the marrow in many debilitated cases other than rheumatoid arthritis, for example, after poliomyelitis.

The results claimed from the operation are:

1. "Relief of pain". As mentioned previously, many individual procedures, whether physical therapy, correct dietary, elimination of foci *et cetera*, have resulted in benefit and relief from pain in many arthritides.

2. "Improvement in the well-being of the sufferer, manifested by improvement in the red cell count", and Mackenzie states that "an increase of 100,000 per cubic millimetre in two weeks is common and usual". Here again I think that this result could be quite easily obtained by measures combating the secondary anæmia which often accompanies rheumatoid arthritis.

3. "Improved functioning of the limbs, probably due to the relief from the pain which previously accompanied any movement." But surely this improved functioning might be due to the almost certain manipulative treatment that the patient had at the time of operation, although Mackenzie states that the relief from pain occurs not only in the joints near where the bone has been opened, but also through all the parts of the body which are affected.

Even in advanced cases with destruction of joint cartilage great improvement, especially relief from pain, has been claimed. To me it does not seem possible that in those rheumatoid joints which one

frequently sees with marked destruction of joint cartilage by pannus, boring into the bone is going to do much good. So far I have not been impressed by the evidence brought forward. There still seems to be a lot of experimental work that needs to be done, and I should not like to express a final opinion about this line of treatment at present.

Royal North Shore Hospital Arthritis Clinic.

At the Royal North Shore Hospital of Sydney we have a clinic for arthritis one afternoon per week, when I carry out investigations of cases. Here a careful and complete history is taken, the patient is referred to other departments, for example, ear, nose and throat, if necessary, and what is considered the appropriate treatment is ordered.

With regard to the relationship of the clinic to the rest of the staff, it is to be noted that others have a perfect right to treat arthritis in their own departments if they so prefer.

It is to be hoped that the general practitioner will be made to realize the desirability of the thorough investigation of early cases, when discovery and removal of an infecting focus and other appropriate treatment afford a greater chance than at later stages of effecting a speedy and permanent cure. He must not be content merely to relieve immediate symptoms, but must search for the cause and persuade the patient to submit to the necessary treatment. Too often patients come to the clinic in very advanced stages of the disease, an imperfect or no investigation having been carried out some years previously and only temporary symptomatic relief given. Because of the expense which they can ill afford, many of these patients have been unable to have further investigation and treatment, and to these the arthritis clinic should prove a boon.

The arthritis unit should fulfil the purpose of research and observation as well as treatment.

The extent of arthritis as an economic problem is only just being realized. It has been estimated that the disease causes at least one-tenth of the total industrial disability of England, with an expenditure of £4,500,000 *per annum* for sick benefit and a loss of about 4,000,000 days of work *per annum*.

In America clinics for the intensive study and treatment of arthritis have been established at many centres, such as Philadelphia, New York, Boston *et cetera*, and at Boston there is a 200-bed hospital which deals practically solely with arthritic cases. In Sweden the government has built or is building four hospitals of 60 beds or more each for the sole care of the disease. Thus the establishment of arthritis units in Australia is in the right direction and will aid in the world-wide campaign that is gradually commencing against the disease, and may, we hope, help to break somewhere into the vicious cycle.

Reports of Cases.

TRICHOTILLOMANIA.

By J. M. O'DONNELL, M.B., Ch.M.,

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Western Australia.

Case History.

S.B., AGED ten years, was brought to me by his mother in March, 1933, with the history that his hair had been falling out from time to time since he was two and a half years of age.

The first bald patch used to occur in the central and front part of the scalp. During the ensuing years this patch got well, but the hair grew back lighter in colour (see Figures II and IIIA).

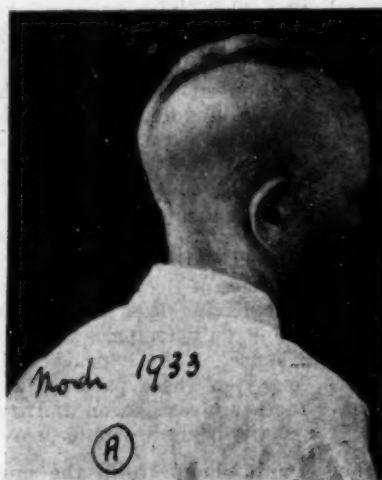


FIGURE 1A.

When the central patch got well, the hair started to fall on each side of the head and has been falling out from time to time ever since.

The falling would occur quite suddenly and inside of a couple of weeks the bilateral areas would be once more denuded of hair. These processes of falling and regrowth had been recurring about every three months ever since.

Examination in March, 1933, revealed a symmetrical alopecia, as shown in Figures 1A and 1B.

The hair was regrowing as fine silky hairs, and there were a great number of stumps. There was no sign of inflammation anywhere in the stumps. Moreover, the regrowth was occurring evenly all over the area, and there was no tendency for the regrowth to occur at the centre of the patches before it did at the periphery. There were no "exclamation mark" stumps, as one sees in *alopecia areata*. Repeated microscopic examinations of stumps showed no evidence of fungus infection. The Wassermann test gave no reaction.

Examination about July, 1933, revealed the same type of symmetrical alopecia (as shown in Figure 2). In addition, he now had a number of "sores" in the scalp. The "sores" were apparently the reason for the mother

bringing him back. The sores were trichophyton large-spored ringworms. They were definitely not present in March, 1933, and have now (April, 1934) completely cleared up under treatment. However, the alopecia still goes on as before (see Figures IIIA and IIIB, taken in April, 1934).

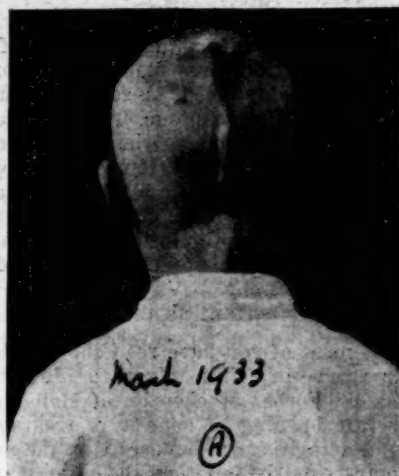


FIGURE 1B.

Comment.

The unusual nature of the symmetry of the baldness and the method of regrowth, absence of fungus *et cetera* made me suspect a "tic" for hair pulling. On being questioned, the lad said that instead of scratching his head he "just pulled some hair out".

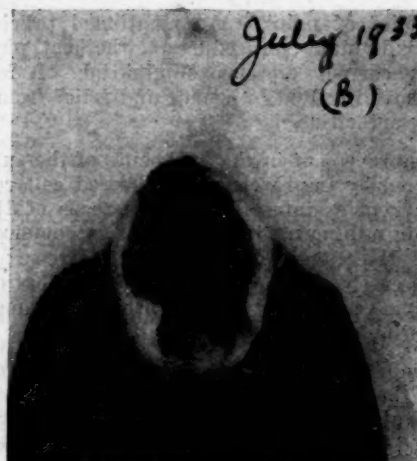


FIGURE 2.

He says that there is no irritation *et cetera* which might prompt him to do it. He just simply "pulls some hair out" and that is all.

Dr. R. G. Williams, who was good enough to examine the boy psychologically, says that the boy is very backward and of the latent *dementia praecox* type.

The treatment adopted (but without success) was keeping the scalp closely cropped and the application of stimulants to the denuded areas.

The case clearly presents a psychological problem and not a skin one. Psychiatric treatment, however, is difficult owing to lack of intelligent cooperation on the part of the mother.

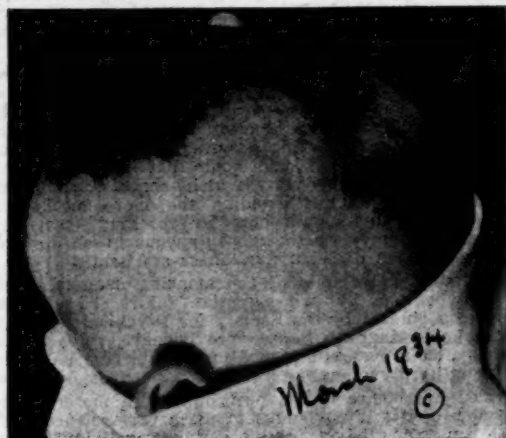


FIGURE IIIA.

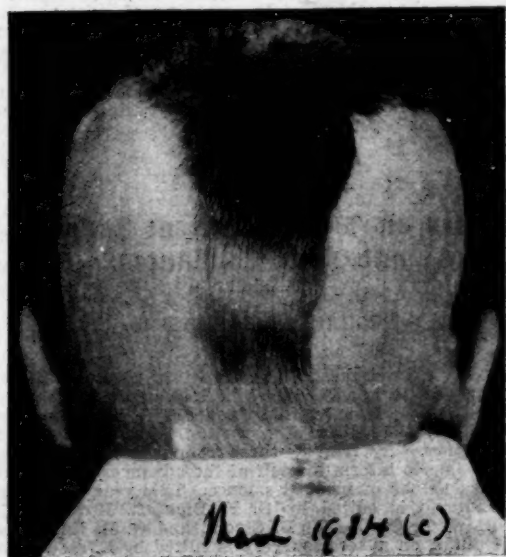


FIGURE IIIB.

Acknowledgements.

My thanks are due to Dr. R. G. Williams for examining the patient, and to the photographic department of the Perth Hospital for the photographs.

Reviews.

HOSPITAL DIETETICS.

It is becoming more and more realized that the feeding of the sick is no longer a haphazard process which can be entrusted to some member of the hospital staff whose sole

qualification is that she is dignified by the name of house-keeper or assistant matron. Dietetics have come to play such a great part in the modern treatment of disease that unless there is some intelligent cooperation between kitchen and wards, little of the work of the latter will be satisfactory. A simple instance of this was seen in the liver treatment of pernicious anemia. Physicians, even in the early days, saw that half a pound liver taken daily was sufficient to maintain their anemic patients in health; but they had to turn to the kitchen experts in order to devise ways of making this mass of liver not merely palatable, but even not revolting. So it is that many hospitals now possess a trained staff of dietitians whose work it is not only to devise diets which shall carry out the therapeutic needs of the ward, but also to exercise control over the feeding of the whole institution. Such dietitians can no longer merely gain their experience in an ordinary kitchen. They require extensive scientific knowledge of foods, nutrition, and to some extent of disease; so that the calling of dietitian is attracting more and more the University graduate of the science class. It is for such an intending dietitian that Miss Thomas, the Director of Dietetics of the Michael Reese Hospital, Chicago, has written her book.¹ It is exceedingly sound and thorough from the scheme of the opening chapters, where she deals closely with different sorts of foods and their constituents to what may be described as practical diets. She writes in clear, easily understood language that makes the book a pleasure to read. Having covered this familiar ground, she proceeds to the application of dietetics in the treatment of disease, and here her pages are full of experience and practical knowledge. Take for instance the chapter on diet in that common and often so badly treated condition, obesity. First of all she discusses what constitutes obesity; then she discusses the causes of obesity—the glandular disturbances, constitutional obesity and over-eating. There is a series of carefully planned reduction diets. At the end of each chapter is a series of questions so that the reader can review her assimilation of what she has read.

Naturally the chapters in the book to which one turns with the greatest interest are those dealing with gastrointestinal disturbances. They cover many pages and are lucid and complete. A full Sippy diet is favoured in ulcer cases, but no comment is made on the inconvenience to which such diet usually puts both nurses and patients. Mucin is discussed and the verdict given is "not proven".

The weakest chapter is that on nephritis and certainly it could do with revision in view of modern ideas. For instance, to dismiss the use of the high protein dietary required in the treatment of nephrosis in half a page is, in these days, rather cavalier. There is no mention made of the low acid diets used in certain clinics in America, although many writers claim valuable results from their use.

Naturally the diet of children comes in for a considerable amount of attention and in addition to the scientific side there is a certain amount of attention given to the psychological aspects of juvenile feeding, but not nearly as much as the subject really requires. In fact the chief adverse criticism to be made of this book is its tendency to impersonal character and to treat the body much as one might treat a motor car engine. Food is such an intensely individual matter that it is usually by no means sufficient to give the patient long tables of diets and "Don'ts and Does". The attractiveness of food is as important as its nourishment. One of the greatest problems of the modern hospital is the tendency of food to sameness of taste and appearance. For certain conditions this may not matter much, but there are a number in which good digestion waits very largely upon appetite, and unattractive food benefits the patient very little. Especially is this the case in gastrointestinal disorders. A period of weeks, for instance, during which the patient on a "Number 2 ulcer diet" faces the same dreary run of soggy fish, limp fowl, tasteless egg, and sodden vegetable, is only one of the reasons patients

¹"Food in Health and Disease: Preparation, Physiological Action and Therapeutic Value", by K. M. Thomas, B.A.: 1933. Philadelphia: F. A. Davis Company. Demy 8vo., pp. 370.

in our public hospitals are so constantly imploring their friends to bring in food cooked outside.

Another field in which the attractiveness and palatability of food are very important is in the convalescence following nose and throat operations. Between the combination of cocaine and adrenalin, raw surfaces and sore tissues, the sufferer has little inclination for food. So that what should be a minor operation becomes, by the sheer starvation induced by it, the cause too often of weeks of invalidism.

Miss Thoma's book was certainly written in 1933, but repeal was then at least looming in the air, and the use of alcohol in dietetics deserves at least passing consideration. How often have we seen a hospital patient roused to take an interest in food by a glass of beer or stout? How often, too, have we seen the loathing produced by the hospital method of administering brandy as a somewhat ill-flavoured medicine? Wines, beers and all liqueurs are most important means of administering alcohol, all of which may serve to jade the tired palate and excite the all-important psychic flow of gastric juice.

Rather surprising, for an American text book, is the small use made of ice cream. Children and adults enjoy this in many conditions, from laryngeal tuberculosis to typhoid. It is cheap and of a high food value.

One quite interesting chapter deals with diet in pregnancy, but it is not nearly full enough. All of us must have seen patients who were on the verge of *hyperemesis gravidarum*, steered into a safe course by the tactful use of appetising and pleasant foods.

To sum up, Miss Thoma's book is an excellent one and can be thoroughly recommended in most respects. We can only feel, however, that the ideal book of dietetics would probably be written by a committee that would include amongst its members those who had had: (i) two or more children; (ii) some degree of nose and throat operations; (iii) a gastric ulcer; (iv) an abdominal operation; and (v) *diabetes mellitus*. Others could be coopted if necessary.

PSYCHOLOGY.

THE scope of the third edition of "Psychology and Psychotherapy" is so much more comprehensive than that of the 1922 impression as to justify the author's claim that "it is really a new book".¹ What is common to both is a discussion of dissociation, of Freud's theory of dreams and of the unconscious, and of theories of emotion, with some account of Brown's experiences in treating the psychoneuroses of war.

The present edition has a wider outlook than the former. It includes chapters on the bearing of psychology on alcoholism, on adolescence, on personal influence, and on peace and war. The chief theories of the relation of mind to brain are next brought forward; and the final chapter correlates psychology with psychical research and the eternal values.

Dr. Brown's erudition is undeniable. He approaches psychology through mathematics and statistics, physiology, philosophy, and medicine.

He is an optimist with the optimism of the expert who envisages coming possibilities. "It is impossible", he writes, "not to be enthusiastic about the future of psychology". Cynics may deride Freud as a sex fanatic. They may smile at the schisms among the psycho-analytical elect. They may point to the multiplicity of "schools", each trenchantly critical of the cherished beliefs of the other. But Brown points out that there is, nevertheless, general agreement on certain important points. The operations of the unconscious mind are active and pervasive, even though elusive to superficial view. This activity and pervasiveness affect men in the mass, in their groups, whether of trade or of nations, hence the importance of psychology on the problems of history, politics and economics. Brown sees psychology coming

into its own in the near future and reckoned an essential part of the education of every man of culture.

Brown, like most other eminent English psychologists, is no slavish follower of any one school. His concept of hypnotism combines the views of the two antagonists of the seventies and eighties, Charcot and Bernheim. He indicates the possibility even of reconciling Freud's and McDougall's views on instinct.

On the relation of mind to brain he traverses and rejects the theory of psycho-physical materialism or automatism, considers psycho-physical parallelism a more worthy theory and shows the inadequacy of behaviourism. Appreciating the "scientific accuracy" and the "impres-siveness" of Pavlov's work, he holds that it fails to establish the materialistic view which some consider its necessary outcome. "It explains the more mechanical aspects of life and shows how far reaching" they are, but does not appreciate that "spontaneous urge" upwards to the realization of beauty, goodness and truth.

The final chapter tells of the amazing demonstrations of self-hypnotism by two Egyptian fakirs. As to the phenomena studied by the Society for Psychical Research, Brown holds that there is "provisional evidence" for telepathy, clairvoyance, and mediumistic phenomena, which at present hardly amounts to "adequate scientific evidence".

Forced by science to the position that a merely scientific view of life is not sufficient, he says: "science needs to be supplemented by philosophy and religion". The psychologist must eventually become a philosopher and he cannot escape the problems of logic, ethics and aesthetics. The more successful the psychologist, the more urgent is it to solve the problem of the meaning of existence and "what he is in the world for". Brown's answer is "to develop his character and the personality to the utmost" and "to grow a soul".

This is a book at once informative and inspiring and well worth reading by anyone interested in either psychology or psychiatry.

Notes on Books, Current Journals and New Appliances.

PROGRESS IN MEDICINE.

THE several volumes of the "Practical Medicine Series" for 1933 are to hand.¹ These books contain abstracts of articles culled from various sources during the year. Occasionally the editor of a section adds a comment to his abstract. By reading these volumes the practitioner will be able to inform himself of the advances made in the several sections of medical science. This year the volume on medicine is edited by G. F. Dick, L. Brown, G. R. Minot, W. B. Castle, W. D. Stroud and G. B. Eusterman. The volume on general surgery is edited by E. A. Graham. The section devoted to the eye is edited by E. V. L. Brown and L. Bothman; and that on the ear, nose and throat by G. E. Shambaugh and E. W. Hagens. Paediatrics has been entrusted to I. A. Abt.¹ The section on gynaecology has been edited by J. P. Greenhill, and that on obstetrics by J. B. De Lee. The volume on general therapeutics has been edited by B. Fantus and L. B. Kartoon; and that on urology by J. H. Cunningham. The section on neurology is the work of P. Bassoe, and that on psychiatry is edited by F. G. Ebaugh. Dermatology and syphilology have been entrusted to F. Wise and M. B. Sulzberger. This series is now in its thirty-third year. It is an extremely useful set of volumes and may be commended to the use of all practitioners of medicine.

¹ "Psychology and Psychotherapy", by W. Brown, D.M., D.Sc., F.R.C.P.; Third Edition; 1934. London: Edward Arnold and Company. Demy 8vo., pp. 259. Price: 12s. 6d. net.

¹ "Practical Medicine Series", 1933: General Medicine, pp. 831; General Surgery, pp. 826; Urology, pp. 445; Pediatrics, pp. 548; Obstetrics, Gynecology, pp. 630; Eye, Ear, Nose, Throat, pp. 632; General Therapeutics, pp. 464; Neurology, Psychiatry, pp. 471; Dermatology, Syphilology, pp. 455; 1934. Chicago: The Year Book Publishers. Crown 8vo., with illustrations.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 15, 1934.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

THE PRACTICE OF PHYSICAL THERAPY.

In a recent issue of this journal reference was made to the teaching of physical therapy. On that occasion a plea was entered for adequate teaching of the undergraduate, for an approach to the subject as part of general medicine, and for reliance as far as possible on simple methods. Obviously no medical practitioner will be able to give his patients the full benefit of physical therapy methods unless he knows what can be expected of them, unless he knows what methods should be used, and unless he is able to gauge their effects. If we presume that medical practitioners have the adequate knowledge and training, we may discuss their practice of physical therapy according to whether they apply the methods of treatment to their patients or whether they have to send patients to others for treatment. In this discussion, as on the previous occasion, physical therapy by such highly specialized methods as radium and X ray treatment will not be considered.

Little more than passing reference will be made to physical therapy applied by the medical practitioner himself. Medical practitioners should pay

more attention to this form of treatment than they do. Many forms of physical therapy that the medical practitioner himself can direct have the advantage of requiring an effort on the part of the patient. Whether the patient is making a conscious effort or not, the medical attendant will be in a much more commanding position if he is himself applying the treatment than if he has to relegate its application to someone else—he will know just exactly where the patient stands on the road to health. On the other hand, medical practitioners sometimes think that they are able to carry out all forms of physical therapy without the help of anyone else. This is obviously fallacious. For example, very few practitioners of medicine would be capable of undertaking the successful massage of a limb after a severe fracture, or the reeducation of muscles after acute poliomyelitis.

This brings us to consideration of physical therapy that has to be carried out for a medical practitioner by another person. In this connexion we wish to consider especially massage and remedial exercises or what is sometimes known as medical gymnastics. All medical practitioners will agree that massage is an art, requiring for its effective practice knowledge and skill. In certain States of the Commonwealth this has been recognized, and masseurs and masseuses are required to undergo a special course of training before qualification and registration. What all medical practitioners possibly do not know is that the majority of qualified experts in massage belong to an organization, the Australasian Massage Association, which is governed by rules of ethical conduct as rigid as those of the medical profession. Did they realize this, they would never send their patients for massage treatment to unqualified persons. Members of the Australasian Massage Association do not undertake treatment of a patient except at the request or under the control of a medical practitioner. Occasionally a patient seeks the advice of a qualified masseur who refers the patient to his usual medical attendant. Masseurs complain that the medical practitioner sometimes pooch-poochs the idea of massage and that the patient then goes of his own accord to an unqualified masseur. Of course, massage may not be necessary in every such case, but

we wonder whether the complaint of the masseurs may not sometimes be justified. Even if massage is not necessary, it may still be beneficial; and it appears that if a patient were determined to have massage, he would be better in the hands of a trained expert than in those of an unqualified person. So much for one side of the picture; there is another. Medical practitioners complain, and from inquiries made in every State the complaint seems in many places to be justified, that when corrective exercises, medical gymnastics, are required for a patient, qualified masseurs, owing to lack of gymnasium equipment and so forth, are seldom able to do what is necessary. Gymnasias certainly exist, but they are often controlled by persons who are physical culture experts and nothing more. It is true that at some of these gymnasias qualified masseurs or masseuses are employed, but this is not the general rule. To gain the full support of the members of the medical profession, the qualified experts in massage must have at their disposal suitable gymnasias with all the necessary incidental apparatus. It should be possible by some method of cooperation for qualified masseurs and masseuses to establish a medical gymnasium in all large centres. Although this is a matter for the massage people, medical practitioners cannot expect anything to be done if they are half-hearted in their cooperation with qualified massage experts under existing conditions. Discussion on this matter would be incomplete without some reference to the strenuous physical culture carried out at some gymnasias. Unfortunately anyone may call himself a physical culture expert. A man may be employed to rub down the members of a football or athletic team and, having been seized with grandiose ideas, may set himself up in a gymnasium to confer good health, slimness and what-not on all and sundry. We do not suggest that all or even any large number of physical culture gymnasias have been established in this way, but we have yet to hear of a physical culture gymnasium at which a medical certificate of fitness is required before any person is allowed to undergo a course of intensive physical culture. Unfortunately instances have occurred in which the demise of a panting plethoric arteriosclerotic person has been hastened by physical culture aimed at a

reduction of adipose tissue. It is difficult to draw a line between physical culture directed towards the maintenance of health and medical gymnastics directed towards the curing of a disability. Perhaps no such line can be drawn. Medical men must teach their patients that it is as important to keep the body healthy as it is to cure it when it is sick. In doing this they will have ample opportunity for proclaiming that the care of the body in either case should not be entrusted to unqualified persons, and they will, of course, never recommend or agree to the employment of such persons.

Current Comment.

THYREOIDECTOMY AS A MEANS TO RELIEVE CARDIAC FAILURE.

LAST year the suggestion was made that severe cardiac failure of either the congestive type or the ischaemic, with anginal attacks, might be relieved by removal of thyroid tissue, so as to reduce the general metabolic rate. Rosenblum and Levine, recognizing the possibility of a degree of latent hyperthyroidism, attempted to improve the condition of a patient suffering from advanced congestive failure and auricular fibrillation by performing a subtotal thyroidectomy. Section of the gland in this case showed no morbid change, but nevertheless the patient was considerably benefited, the improvement lasting four years. It was this experience that led to the above suggestion, and further work in the same clinic proved that it was not sufficient to remove part only of the gland, as compensatory changes appeared to occur and the noted improvement was then temporary only. Therefore Blumgart suggested that total removal of the thyroid gland was justifiable, and the technique was worked out and described by other workers in this field. This part of recent medical history is traversed by W. Roland Kennedy in a review of the literature, and a description of two successful cases, is also given by him.¹ He points out in a preliminary summary of the metabolic problems involved that the basal metabolic rate runs parallel to the velocity of the blood flow: in thyrotoxicosis the speed of the blood flow is increased, as is shown by the familiar application of Read's formula, which involves the basal pulse rate and pulse pressure. These are not the only factors concerned, of course, but a calculation by this formula frequently gives a result roughly comparable with the estimation of the basal metabolic rate by the usual methods. The patient with a failing heart, however, has a slowed circulatory rate, whereas his metabolic rate is normal. He is therefore working at great dis-

¹ *The Canadian Medical Association Journal*, June, 1934.

advantage, for his metabolic rate, though apparently not augmented by the usual criteria, is really too high for the lowered blood flow. If, then, the rate of the metabolism can be lowered, he should experience relief, for the lowered blood supply, though not sufficient for the normal man, may supply his tissue demands if these can be moderated. This argument would most obviously apply to congestive cardiac failure, in which the slowing of the immediate blood stream to the tissues is evident and is continuous. But it may also be applied to ischaemic failure. The more the work of the body, the more demands are made of the heart, and consequently the more blood is required to pass through the coronary vessels. Kennedy summarizes the results of lowering the metabolism in patients with angina, pointing out that the work done by the heart is decreased, the innate metabolism of the heart is lowered, and its sensitivity to epinephrine is decreased. Finally, it is noted that after thyroidectomy cardiac disabilities often improve or disappear and that circulatory insufficiency is seldom found in myxoedema, but may be precipitated by thyroid used incautiously in treatment.

The total ablation of the thyroid gland seems an extremely radical form of treatment, and radiation has been proposed as an alternative. However, the cases reported to date are not encouraging, for no permanent improvement has followed. Operation has been borne surprisingly well by those patients who have been subjected to it, and the two cases reported in this paper bear out this experience. One of the patients was a young man who had suffered from cardiac rheumatic disease; he had some congestive signs, and in addition had anginal pain due apparently to grave myocardial affection. One year of treatment in hospital failed to relieve him, but after a thyroidectomy carried out under a premedicated local anaesthesia he was able to get about without distress. No signs of myxoedema were noted, though it must be remarked that his basal metabolic rate before operation was always raised about 30% above the normal. The second patient was also young; she had a congenital lesion of the heart with well marked cyanosis and polycythaemia and suffered from attacks of anginal pain. These attacks were most difficult to relieve, and even injection of the upper thoracic sympathetic nerve roots failed to give more than temporary relief. In her case the metabolic rate was normal, and after operation it fell to -22% of the normal. Great improvement was observed and the major evidences of ischaemic and congestive failure were no longer found.

These cases are interesting and other and larger reports will be found in the recent literature by those interested. It will probably seldom happen that ideal cases for this radical procedure will be seen, but where the outlook is otherwise very bad it might be justifiable to suggest even so drastic a form of treatment, even though the tenure of comfortable life thereafter were short. Special care is necessary in the performance of the operation, for

the recurrent laryngeal nerves must be spared and the parathyroid tissue left behind. The latter glands are not touched, if possible, but the ablated thyroid gland is examined for embedded parathyroids, and if they are found they are transplanted into muscle. Many will no doubt think that this procedure is an evidence of the somewhat ruthless modern preference for drastic forms of treatment, but this is not the only way to look at the question. If modern physicians and surgeons refuse to allow any disabling illness to be labelled as hopeless without trying all possible means of giving at least some measure of relief, this is evidence that the ideals of the profession have not changed.

PHRENIC AVULSION.

In a recent issue of this journal W. J. Newing reported two deaths following phrenic avulsion. This report was useful because, as its author intended, it showed that the operation should not be looked on as one free from danger. There is another aspect. The operation appears to be quite simple and this may lead to its too frequent performance. It does not always give the results that are expected from it. H. Schwatt has recently reported fifteen cases in which it was not successful.¹ The total number of Schwatt's cases was 174. Like most writers, he lays emphasis on the length of nerve avulsed. He points out that nearly all observers are agreed that the avulsion of at least ten or twelve centimetres is in most cases sufficient to insure interruption of all accessory nerve fibres. In 35 of his cases less than ten centimetres of nerve were removed, and in every one of these immediate paralysis was produced. In one case, in which ten centimetres were removed, immediate paralysis did not occur. Failure in this instance was credited to the presence of accessory innervation. In three other cases no immediate paralysis was noted; the reason for failure was the resection of another structure that was mistaken for the phrenic nerve. In two of these three instances the divided structure was a branch of the sympathetic system. In eleven cases of the series a return to normal function occurred after a period of temporary paralysis. Schwatt believes that on account of the comparatively small proportion of failures, a protracted search for accessory nerves should not be made. At the same time he holds that when paralysis is not immediately produced, reoperation is indicated, especially when the evidence points to some other structure having been mistaken for the phrenic nerve or its main stem. The question of failure to produce paralysis of the diaphragm and the reasons for the occurrence of complications are most interesting, but because the operation is destructive of a normal function it will never appear desirable as an operation. It is to be hoped that it will remain solely in the province of those who, from wide experience, have opportunities of estimating its value.

¹ *The Journal of Thoracic Surgery*, June, 1934.

Abstracts from Current Medical Literature.

MEDICINE.

The Effect of Pilocarpine on the Gastric Secretion.

LEO. J. MELENBERG AND CHARLES L. BROWN (*Annals of Internal Medicine*, December, 1933) have studied the effects of pilocarpine on the various constituents of the gastric juice and have compared their results with those obtained following histamine stimulation. They used thirteen patients for the study, and of these four were normal, four were sufferers from pernicious anæmia, two had duodenal ulcer, one had gastric carcinoma, and two had functional conditions. All subjects were studied under fasting conditions and the fasting juice was collected for a period of fifteen minutes, care being taken to exclude, as far as possible, the swallowing of saliva; bile-tinged specimens were discarded. In eight cases histamine phosphate (0.1 milligramme per 10.0 kilograms of body weight) was then given hypodermically and the gastric juice was collected by continuous aspiration for one hour. In these cases this was followed by a hypodermic injection of pilocarpine nitrate (0.5 milligramme per 10.0 kilograms of body weight) and the collection of juice for another hour. In the other five cases the pilocarpine was given first and the histamine one hour later, the specimens being collected in a similar manner. The following estimations were carried out on each specimen: total volume, free and total acid, total chlorides and total peptic activity. The results were then carefully analysed and the authors concluded that pilocarpine is a true stimulant of gastric secretion, its chief effect being an increased volume of juice, but the acid and pepsin secretion are also stimulated. They obtained no definite evidence in support of the view that pilocarpine is a better stimulant of enzyme secretion than histamine, nor could they conclude that either substance is more effective than the other in this regard. This applies equally well to the acid and total chloride secretions.

Blood Transfusion.

EDUARD JACOBSON, of the German Hospital at Riga (*Münchener Medizinische Wochenschrift*, April 6, 1934), describes his experience during the years 1927-1933 with 195 patients who received 584 blood transfusions. Of these patients, 35 had pernicious anæmia and received 102 transfusions. He considers transfusion indispensable when the hæmoglobin is very low (under 20%) and uses it for patients who are refractory to liver therapy, and to hasten recovery. Fifty-two patients with secondary anæmia had 155 transfusions. These were of the most varied description. The author emphasizes the value of transfusion

in arresting bleeding. He quotes the case of a lad who had secondary hæmorrhage after amputation of a finger for cellulitis. Compression and other surgical treatment were of little avail until supplemented by transfusion. In cancer with secondary anæmia the cachectic appearance was lost and vigour returned, provided the condition was not too far advanced. Twenty such patients received 47 transfusions. In the leuchæmias and similar blood diseases 11 patients had 30 transfusions; little benefit was obtained. For sepsis 34 patients were treated with 120 transfusions. Acute sepsis was not benefited, but in protracted cases remarkable benefit was often conferred. Patients with endocarditis did not benefit, and in some cases were made worse. Of eight patients with pulmonary gangrene, six recovered; but all these were given "Neosalvarsan" as well. Other conditions benefited by transfusion were furunculosis, stomatitis and polyarthritis. The author gives 200 to 300 cubic centimetres in five to fifteen minutes, and at intervals of three, five or seven days. He issues a warning against using larger amounts. To one patient exsanguinated after duodenal bleeding he gave 800 cubic centimetres with a fatal result. Thrombosis is not, in his opinion, a contraindication. In three cases of anæmia with thrombosis of the lower limbs the clearing of the thrombosis was hastened.

An Anti-Diphtheria Campaign.

M. GUNDEL AND NIERMANN, of the Robert Koch Institute in Berlin (*Deutsche Medizinische Wochenschrift*, May 25, 1934), describe the measures taken to deal with an epidemic of diphtheria in the town of Aachen. In this town the average annual number of cases had been 80 to 100 until the year 1929, when it rose to 112. After this there was an increased incidence until in the year 1933 there were 1,165 cases, and in January and February of 1934 there were 422. The increased prevalence had now become an epidemic. The idea of protective inoculation was much feared by the general public, who remembered the Lubeck disaster. However, in October, 1933, Niermann succeeded in having some children inoculated, and this served as a demonstration of the harmlessness of the procedure. By the end of January, 1934, of about 50,000 children in the town, 2,000 had been inoculated. This was a beginning, but the goal was the inoculation of 100% of the children, that is, 50,000. For this it was estimated that about 150,000 cubic centimetres of inoculating fluid would be required. But this amount was not immediately available. Consequently the general inoculation could not be simultaneous, as had been planned, but had to be done gradually as supplies came to hand. Meanwhile, as the result of active propaganda and of the support of the Prussian Ministry of the Interior, a comprehensive scheme had been organized which enlisted the help of the medical practitioners, the pharm-

cists, the school-teachers, the Red Cross, and the women's associations, all with the common object of stamping out the diphtheria and of helping the afflicted people. The town was divided into thirteen injection stations, and the medical practitioners were allotted to the stations in proportion to the number of children to be dealt with. Injections were given on Monday, Wednesday and Friday from 2 to 4 p.m. The average number to be injected by one medical practitioner in an afternoon was approximately 450. Injections were given at the public stations only; private injections were forbidden. On a suitably devised card all particulars were entered: name, age, address, previous diphtheria (if any), date and amount of injection, and subsequent developments. The school-teachers instructed the scholars as to the object and safety of the injection, obtained the parents' permission, fully prepared the cards for the injection sessions, made ready a class-room for the injections, paraded the classes, completed the cards after injection, and took charge of them. For injecting, "Formoltoxoid" was used for children up to ten years, and for those from ten to fifteen, "T.A." and "T.A.F." At the date of writing the authors are able to record that almost all the 50,000 children have been injected and that the fresh cases of diphtheria now occurring are fewer than in an ordinary year. They regard this result as a striking demonstration of what may be accomplished in this respect by united and well-directed action of all classes working devotedly to a common end. Besides the above-described measures a temporary laboratory was installed in the Berlin Robert Koch Institute. This was concerned with the rapid bacteriological diagnosis of new cases and with the search for "carriers". Carriers were found abundantly; in some school classes 45% gave positive swabbings. Any carrier and any member of a family in which a new case occurred, up to the age of twenty-five years, was given a passive-immunization injection of 1,000 units of diphtheria antitoxin with what were, in the opinion of the authors, beneficial results.

The Role of Antitoxin in Diphtheria.

H. KLEINSCHMIDT, of the University Children's Clinic in Cologne (*Deutsche Medizinische Wochenschrift*, May 25, 1934), takes up the cudgels on behalf of diphtheria antitoxin, moved thereto by recent derogatory pronouncements, which he quotes. Thus Zischinsky, in charge of one of the largest infectious hospitals, the Wilhelmina Hospital at Vienna, declares that serum therapy has not stood the test and that today we are scarcely less helpless in regard to diphtheria than were the old physicians of the last century. Bingel, in 1918, stated that the results of serum therapy were not attributable to the antitoxin content of the serum. Hottinger, in 1932, spoke of the "legend of the results of specific treatment". And in late years there have

been many complaints of the failure of serum therapy. On the other hand, Heubner, in 1895, in the first great work on the treatment of diphtheria with Behring's serum, expressly stated that it "failed under some circumstances and that in animal experiments the lethality of a given dose of toxin did not depend on the weight only of the animal, but on uncontrolled conditions, such as its individual resistance". In the early days it was considered a prodigious advance that the diphtheria mortality in hospitals had fallen from 44% to 21% (Heubner) or from 41% to 15-6% (Baginsky). Nowadays Zischinsky reports a hospital fatality of 5% to 7-8% and states that we are almost helpless in dealing with diphtheria. It is quite true that there do occur cases of diphtheria in which the poisoning is so rapid and overwhelming that serum is of no avail, and that in some epidemics the proportion of such cases is very high. But the same occurred in the early days of the serum era, when Heubner wrote that "very severe cases could not be saved even by very large doses". The author regrets that so much mention is made of the rare deaths which occur even after early giving of serum, and that so little is written of the much more numerous deaths which are attributable to delay in giving it. It is a mistake to speak of an "incubation period" in diphtheria. After infection with the bacillus the subject is a "carrier" for a period, which depends on the efficacy of his mucous membrane as a first line of defence. It may be a matter of weeks or days or of only a few hours till symptoms appear. The mucous membrane protection may be impaired by rhinitis or catarrh, or by intercurrent measles or scarlet fever. After invasion by the bacillus the second line of defence is the natural non-specific resistance of the individual. This largely determines whether the attack is to be mild or severe. At this stage there is no autogenous antitoxin. The production of this requires time, and this is not available, if the infection is severe, with a fatal issue in two to three days. The first few days are critical—the amount of toxin may overwhelm all natural resistance, and it is at this stage that any damage to heart or nerves is produced. Antitoxin, injected thus early, neutralizes toxin and so prevents further damage, but it does not heal any injury already done to heart or nerves. If a lethal dose of toxin has already combined with the tissues, no amount of antitoxin, whether given by intramuscular or by intravenous injection, will save the patient. Such a lethal dose may be absorbed in a few hours, but fortunately this is rare, and usually there is time to attack with antitoxin. It is true that many patients recover with delayed antitoxin treatment or without any antitoxin. But this does not invalidate the old dictum, "the earlier the injection the better the result", nor the well established observation that antitoxin arrests the spread of

the disease from the pharynx to the larynx. This it was that created most sensation in the early days of antitoxin, when laryngeal diphtheria was so much dreaded as the principal cause of death. And the results obtained in those early days with such small doses of antitoxin suggest that the modern tendency to indefinite increase of the dose is wrong. The author suggests that 500 units per kilogram of body weight should be a maximum dose and that larger doses give no additional benefit. For improvement on the present treatment the line to follow is to raise the natural non-specific resistance to the toxin. For this, blood transfusion has been found of great value. The public should be educated to recognize the initial symptoms of the disease and early diagnosis should be facilitated.

Renal Efficiency Tests.

J. D. S. CAMERON (*Edinburgh Medical Journal*, June, 1934). In a paper read at a meeting of the Medico-Chirurgical Society of Edinburgh, discusses Calvert's urea concentration range test in the diagnosis of renal efficiency. From consideration of the complexity of renal function he concludes that no single test will give full information about the functional ability of the kidneys. This fact is responsible for the multiplicity of renal efficiency tests. In the region of one hundred such tests have been suggested and most of them have been quickly discarded. Of the tests in common use, the author maintains that the urea concentration tests of Calvert and of MacLean and de Wesselow are the most useful. After applying Calvert's test to 100 normal individuals of all ages and both sexes and thereafter using it in 700 cases under his observation, he considers it superior to MacLean's test. He criticizes MacLean's criteria of efficiency, stating that in his opinion ability to concentrate to only 2% is evidence of fairly advanced renal impairment. With Calvert's test he finds the lowest normal maximum concentration at 3-5%. The technique used differs only slightly from that originally suggested by Calvert in 1925. From noon onwards on the day of the test the intake of fluid is restricted as far as possible. At 9 p.m. 15 grammes of urea in 100 cubic centimetres of water are given. Lest an initial diuresis should upset the result, the bladder is emptied at 10 p.m. Any urine passed during the next eight hours or when the bladder is emptied at 6 a.m. should contain the maximum concentration of urea the kidney is capable of passing. Following this, two pints of fluid are given at 6 a.m. and the bladder is emptied at 7 a.m., 8 a.m. and 9 a.m. The author considers that one of these specimens will show the minimum concentration of urea the kidney passes. In his series of normals the highest maximum concentration was 5%, which was obtained from two patients. The lowest average maximum concentration for any age decade was 3-5%, and similarly the normal

minimum was fixed at less than 0-4%. The first stage of inefficiency gave a range of maximum 2-5% to 3-5%. In the second stage the maximum ability to concentrate falls below 2-5% and is associated with a very little retention of the urea given, showing itself by very slight rise of the minimum, that is, a maximum 2% to 2-5%, minimum 0-5%. Fall of the maximum below 2% indicates a fairly severe degree of inefficiency and becomes associated with a higher minimum (0-6% to 0-8%). Thereafter advancing inefficiency is marked by further approximation of maximum and minimum values until in the terminal cases the two values are practically similar.

In the discussion that followed this paper it was suggested that it would have been of considerable interest if Cameron had shown a comparison between these two tests as applied to a series of patients. Speakers also pointed out that other tests, notably blood urea, non-protein nitrogen and creatinine estimations and dye tests, were valuable checks on the more easily performed urea concentration tests. Cameron, in reply, agreed that these tests were useful in definite renal disease. The importance he attached to Calvert's test was that it was of value in the very early stages of renal efficiency, in that wide gap which exists between the normal and the stage at which definite symptoms of renal disease occur.

Irradiation Treatment of Hyperthyroidism.

GEORGE E. PFAHLER (*Annals of Internal Medicine*, January, 1934) discusses the results of treatment of 440 cases of hyperthyroidism by irradiation. He summarizes the advantages and objections of this form of treatment and concludes that irradiation is indicated in all cases of hyperthyroidism in which the patient is not in crisis or is not suffering from definite pressure symptoms. He recommends operation in all simple or non-toxic goitres, unless there is some contraindication, when a moderate amount of irradiation may be used with success. He describes his technique in detail. The analysis of the results in this series shows that with an average of six treatments 57% of patients lost all signs of thyroid intoxication, the basal metabolic rate falling below +10%. These patients were observed over an average period of 6-5 years and were regarded as cured. In addition, the condition of 30-6% of patients was very greatly improved to the extent of their losing all clinical sign of thyrotoxicosis, except a residual myocardial deficiency which was present before the beginning of irradiation. Thus 87-9% of the series were restored to economic usefulness; the remaining 12-1% showed no improvement. Among the patients regarded as cured there were only two post-irradiation recurrences, that is, less than 1%. The author points out that these results compare very favourably with the experience of other radiologists. Menville

reviewed the work of seventy-five radiologists both in Canada and the United States, and found that of 10,541 patients treated by irradiation, 66.2% were cured, 21% considerably improved, and 12.4% not improved. There were 8.45% of recurrences.

The Immediate Accidents of Artificial Pneumothorax.

E. FROMMEL AND M. DEMOLE (*Revue de la Tuberculose*, January, 1934) have analysed the results obtained by inquiry into untoward incidents occurring during the production of artificial pneumothorax in over 250,000 insufflations. Sixty-three immediate accidents were noted, or 0.028%; of these, fifty-eight were transitory and five were fatal. One-fourth occurred at the first injection, and three-fourths at refills in an already established pneumothorax. Fifty-two per centum of accidents occurred before any air had been introduced, and 19% after the needle had been withdrawn following a successful fill; thus only 29% happened during the actual introduction of air. It appeared to make no difference whether the needle employed had a sharp point or a cutting edge, but it was noted that the presence of blood in the needle was a definite factor in the "accident" cases. More than two-thirds of the patients gave evidence of some transitory nervous lesion, such as hemiplegia, monoplegia, aphasia or paresis, often with an epileptic fit or loss of vision. Death, if it occurred, was as a rule practically instantaneous. In the vast majority of cases complete recovery occurred. Beyond stating that they were unable, experimentally, to give rise to gas embolism in healthy animals by puncturing the lung or injecting air thereinto, the authors do not take sides in the controversy whether air embolus or pleural shock causes these accidents. They merely stress the great rarity with which any accident occurs in artificial pneumothorax therapy.

The Spontaneous Disappearance of Pulmonary Cavities.

SOLY KATZ (*Revue de la Tuberculose*, June, 1934) discusses cavities in pulmonary tuberculosis in terms of diagnosis and prognosis and the possibility of their complete healing with treatment by prolonged rest. He insists that a cavity is not an end-result, but merely the outcome of a pneumonic process in which the lesion is being circumscribed. That these cavities appear much earlier than was once believed, and that they are, in addition, far more frequent, radiology has clearly demonstrated. As a corollary, it is now generally accepted from *post mortem* studies that all annular radiographic shadows are cavities. Far from being evidence of a progressive tuberculosis, cavities are to be regarded as indicating a defence mechanism, which may be adequate without any special treatment. The author considers that spontaneous healing of a cavity is not infrequent. Desiderata in obtaining

this favourable result are: (i) The cavity must be discovered as early as possible, at the "resolving pneumonia" stage. (ii) It should not be of long standing or of any great extent, nor should it be situated peripherally. (iii) A long period of rest is essential—months or even years. (iv) During this period care must be taken to preserve the patient's morale.

Thrombo-Angiitis Obliterans of Patients with Diabetes Mellitus.

A REPORT of four cases investigated at the Mayo Clinic for the association of thrombo-angiitis obliterans with diabetes mellitus is made by Bayard T. Horton and Frank N. Allan (*Annals of Internal Medicine*, January, 1934). Gangrene of the lower extremities in diabetes mellitus is due primarily to impairment of circulation and secondly to diminished resistance of the skin to infection. Arteriosclerosis is common in long-standing untreated cases, developing earlier in life and to a more advanced degree than in non-diabetic patients. In some instances, however, the occlusive process is of a different nature. There are five cases on record at that clinic in which thrombo-angiitis obliterans was responsible for the occlusion, and this small number is an indication of the rarity of the association. The case histories are given in detail and show that in all patients the diabetes was of a mild type and in three was easily controlled by dietetic management alone. The criteria for the diagnosis of Buerger's disease were the age and race of the patient (three of these patients were Russian Jews), a history of intermittent claudication, a diminution or absence of arterial pulsation in the affected limb, congestion of the dependent limb with pallor on elevation, trophic changes, such as ulcers and fissures, and lastly, an excessive use of tobacco.

Tobacco, Alcohol and Angina Pectoris.

P. D. WHITE AND T. SHARBER (*The Journal of the American Medical Association*, March 3, 1934) contrast the habits in the use of alcohol and of tobacco of 750 patients with angina pectoris with those of a series of 750 persons of exactly the same sex and age incidence and from the same walks of life who did not suffer from angina pectoris. Each series was composed of 566 men and 184 women, while the age incidence was as follows: 30 to 40 years, 16 patients; 40 to 50 years, 106 patients; 50 to 60 years, 269 patients; 60 to 70 years, 271 patients; 70 to 80 years, 85 patients; and 80 to 90 years, 3 patients. They found that 46.1% of the angina pectoris patients had been abstainers from tobacco, while 24.4% had used tobacco in excess, in contrast with 37.2% of the control series who did not smoke, and 33.5% who smoked excessively. They conclude that past habits of tobacco-smoking are not primarily responsible for angina pectoris. Occasionally patients in the angina pectoris series stated that omission or reduction of tobacco was helpful in causing a

decrease in the frequency of attacks, while in rare cases the attacks ceased altogether when the use of tobacco was given up. Of the angina pectoris patients 64.4% were total abstainers from alcohol, and of the control series 61.7%. Eight of the angina pectoris patients drank considerable or excessive amounts of alcohol, and only one of them drank very heavily, whereas sixty-three persons of the control series drank much alcohol, four of them very heavily. It appears that neither the use of nor the abstinence from tobacco or alcohol plays an important rôle in the genesis of angina pectoris. Tobacco, in occasional cases, aggravates or precipitates an attack; alcohol occasionally assists in relieving or in preventing an attack of angina pectoris.

Suboccipital Puncture.

ANDRÉ PLICHET (*La Presse Médicale*, February 10, 1934) gives reasons for preferring suboccipital to lumbar puncture for diagnostic and therapeutic purposes. He states that it is more easily performed, less painful and less likely to be followed by unpleasant reactions. He describes the technique and shows by a diagram that there is no need to fear injuring the medulla or any other vital spot. So painless is it that at Bonn the professor allowed himself to be punctured as a demonstration to the class. M. Ravaut, of the Hospital St. Louis, makes much use of it, and with Bocage and Richon has written of its value in syphilography. Ravaut prefers to have his patient kneeling on the operating table with head down and flexed on the sternum, elbows flexed and forearms pronated. The left hand of the operator holds the head of the patient steady and in line with the vertebral spines.

Thrombosis of the Pulmonary Arteries.

W. M. FOWLER (*Annals of Internal Medicine*, March, 1934), in reporting a case of complete occlusion of the right pulmonary artery by thrombosis and a partial thrombotic occlusion of the left, reviews the aetiology and symptomatology of the conditions as described in the literature. Thrombosis of the pulmonary artery occurs most frequently as a post-operative or *post partum* complication. It is also found associated with chronic lung disease, the pulmonary arteries usually showing arteriosclerotic changes. Obstructive cardiac disease also is an aetiological factor. The immediate cause of the thrombus formation is difficult to determine, probably the lodging of an embolus in a pulmonary vessel with subsequent thrombus formation being primarily responsible in many instances. It would seem, however, that a blood stream infection is the most important aetiological factor and arteriosclerotic changes in the vessel wall may occasionally be responsible for the thrombosis. Syphilis plays only a minor aetiological rôle. The symptomatology is very variable, the early

symptoms not being distinctive—malaise, anorexia and shortness of breath on exertion. Chronic cough with sudden intensification of symptoms a few weeks or months prior to death is commonly seen. Cyanosis, of a mild degree at the onset, progresses till it becomes one of the most prominent features of the disease. Shortness of breath becomes the most distressing manifestation, whilst cough with a little blood-stained sputum becomes extremely persistent and distressing. Right ventricular failure may supervene or death may occur suddenly as a result of the sudden obstruction of the remainder of the pulmonary circulation. Clinical diagnosis may be possible if the condition is borne in mind, as in some cases a quiescent stage is reached when the recognition of the presence of the thrombosis would be possible.

Gastric Secretion Associated with Genital Carcinoma.

K. FUGE (*Monatsschrift für Geburtshilfe und Gynäkologie*, April, 1934) has investigated gastric secretion by the Ewald Boas method in eighty women already suffering from uterine carcinoma. There was absence of free acid in fifteen cases and a marked diminution in a further twenty-five. Most of the patients examined had inoperable cancer and had been given deep X ray therapy. In practically every case a considerable degree of anaemia was present. From his experimental investigations and clinical experiences the author considers that a variety of symptoms may be associated with this gastric achylia and that therefore it should always be treated with preparations of pepsin and hydrochloric acid.

Whooping Cough Treated Percutaneously.

HANS PAFFRATH, of the Children's Clinic at the Dusseldorf Academy of Medicine (*Münchener Medizinische Wochenschrift*, March, 1934), urges the value of cutaneous applications in whooping cough. Oral treatment is open to the objections that it may increase the vomiting and may cause loss of appetite. Inhalations have the disadvantage that they involve suspension of the fresh air supply which is so essential. The author has been using "Pertussin Balsam", containing *inter alia*, thymol, eucalyptol and terebene. After the application of these volatile oils to the skin of the trunk they can be recovered from the expired air, and to a less degree from the urine, even though the possibility of inhalation of the oils has been excluded. Absorption is very rapid. By repeated observations he has constructed an excretion curve which shows that while excretion in the expired air is greatest in the first two hours after application, it continues for eighteen to twenty-four hours, although the drug may have been washed off immediately after application. A single application of about 25 grammes of "Pertussin Balsam" was followed by the excretion in the

expired air within twenty-four hours of nearly 300 milligrammes of volatile oils. Increased effect is obtained if inhalation is combined with cutaneous application.

Diabetes.

H. E. MICHELSON AND C. W. LAYMON (*The Journal of the American Medical Association*, July 21, 1934) report a case of *necrobiosis lipoidica diabetorum* in a girl aged ten years. Sharply bordered, elevated, red papules, from one to three millimetres in diameter, appeared on the ankle and later on the calf; these papules enlarged to form plaques. Two other plaque-like lesions appeared on the dorsum of each foot. They were scleroderma-like in consistency, covered by thin, smooth epidermis, which appeared shiny; a yellowish violet line in the centre became darker towards the periphery. Minute tortuous blood vessels passed through the thin surface covering. Blood cholesterol was 233 milligrammes per 100 cubic centimetres, phosphatide (lecithin) 178 milligrammes, and fatty acid 428 milligrammes. Biopsy showed extensive lipid deposit throughout the entire corium among collagen bundles, lymphocytes and fibroblasts. In another patient, aged forty-eight, purple, waxy plaques developed after small ulcers had healed on the dorsum of the foot. Biopsy revealed the same histological appearances.

Spontaneous Hypoglycæmia.

ARNOLD ENGELHARD, of the Municipal Hospital, Munich (*Münchener Medizinische Wochenschrift*, May 4, 1934) describes three cases of spontaneous hypoglycæmia. The first patient was a woman of thirty-five years, who had suffered for twelve months from increasing bodily weakness, mental dulness and loss of memory. A Staub-Traugott glucose tolerance test demonstrated hypoglycæmia. The fasting blood sugar being 82, the first dose of glucose, 50 grammes, was followed by a fall to 43 at the end of one and a half hours, and the second dose of 50 grammes being then given, the blood sugar at the end of a further one and a half hours was only 58. She was seen at intervals for the next eighteen months, during which she consumed enormous quantities of carbohydrate, for example, 20 to 40 heaped tablespoonfuls of sugar in the day, and sometimes a quarter of a pound of jam with three to four oranges and perhaps 100 grammes of chocolate before going to bed. Her prevailing symptoms continued to be mental dulness and bodily weakness, with acute exacerbations of the weakness. These attacks were only partially and temporarily relieved by the huge amounts of carbohydrate taken. For "heart attacks" she was given "Cardiazol", but appeared to get most benefit from alcohol as cognac and in other forms. Her weight increased from 68 to 90 kilograms. The second patient was a student, aged twenty-two years. From being a gymnast and athlete, he became feeble in mind and

body, with marked gastric hyperacidity and a fasting blood sugar of 78. A Staub-Traugott glucose tolerance test, with the second dose of glucose two hours after the first, showed a fasting blood sugar of 103, at two hours 68 (just before the second dose of glucose), and 45 at four hours from the beginning of the test. He improved with a high carbohydrate diet, with atropine and treatment of the hyperacidity. He was diagnosed as having a "vagotonic symptom-complex". The third patient was a medical man, aged thirty-nine years, who had suffered for some years from anginal attacks. Not much relief was obtained from the usual drugs, but benefit resulted from beer, half to one litre. Examination revealed no organic disease, even the electrocardiogram being quite normal. The Staub-Traugott test revealed a fasting blood sugar of 113, at one and a half hours 103, and at three hours 68. Neurological treatment in a sanatorium had little effect, nor had ephedrine or intravenously administered glucose. Alcohol, especially beer, gave the best results. This also was an instance of vagotonic symptom-complex, in which the hypoglycæmia produced the bodily lassitude and the mental deficiency. The clinical picture was dominated by the subjective cardiac neurosis.

Simple Achlorhydric Anæmia.

WILLIAM H. BARROW (*Annals of Internal Medicine*, March, 1934) reviews the literature and case histories of hypochromic anæmia with achlorhydria and concludes that there is a not uncommon association of this type of anæmia with primary anæmia in members of the same family. Witts notes that in the family histories the anæmic males are apt to have a primary anæmia and the females a secondary type, and he suggests that the achromic anæmias seem to be the equal in the female of pernicious anæmia in the male. In discussing *achylia gastrica* and achlorhydria, other writers mention the occurrence of this condition in the several members of the same family. Hurst gives a 2% incidence of familial or hereditary achlorhydria. The same writer also believes that anæmia of either form is secondary to the achylia, whether this achylia be familial or acquired. Nearly all contributors to the subject hold the theory that the anæmia is secondary to a gastric secretion deficiency which results in an interference with the maintenance of normal hæmatopoiesis. Barrow presents a family case history which is distinctly unusual because of the high incidence of hypochromic anæmia in one generation. He reports a second family in which there seems to be a tendency to secondary anæmia, but in which only one case was of the achlorhydric anæmic type. One may only conclude that this type of anæmia is not uncommonly found in families in which there is evidence of primary or secondary anæmia in other members of the same family.

British Medical Association News.

MEETING OF THE FEDERAL COUNCIL.

A MEETING OF THE FEDERAL COUNCIL OF THE BRITISH MEDICAL ASSOCIATION IN AUSTRALIA was held at the British Medical Association House, 135, Macquarie Street, Sydney, on August 27, 1934, SIR HENRY NEWLAND, the President, in the chair.

Representatives.

The following representatives of the Branches were present:

New South Wales: Dr. J. Adam Dick, C.M.G., Dr. George Bell, O.B.E.

Queensland: Dr. D. Gifford Croll, C.B.E., Dr. T. A. Price (as substitute for Dr. E. S. Meyers).

South Australia: Sir Henry Newland, C.B.E., D.S.O., Dr. Bronte Smeaton.

Tasmania: Dr. A. W. Shugg, Dr. S. Gibson.

Victoria: Dr. J. Newman Morris, Dr. F. L. Davies.

Sir Henry Newland acted as proxy for Dr. D. D. Paton, and Dr. J. Newman Morris acted as proxy for Dr. D. M. McWhae, both of the Western Australian Branch.

Minutes.

The minutes of the previous meeting of the Federal Council of January 15, 1934, which had been sent to each member prior to the meeting, were taken as read and signed as correct.

Financial Statements.

The financial statements of the Federal Council for the six months ended June 30, 1934, prepared and audited by Messrs. Coates, Cunningham and Company, chartered accountants, together with the Australasian Medical Congress (British Medical Association) accumulated funds account, were presented and adopted.

Contribution from the Branches.

The Federal Council had before it a report from the Honorary Treasurer, Dr. J. Adam Dick. Dr. Dick drew attention to the fact that the income for the year would not be sufficient to cover all the expenses for the year ending December 31, 1934. He also submitted a letter from the General Secretary, Dr. C. H. E. Lawes, in which Dr. Lawes made suggestions for cutting down expenses. Realizing the difficulty in meeting the expenses and liabilities of the Council from the present income, Dr. Dick gave notice of motion for the alteration of By-Law 15 (III) so that the limit of the *per capita* payment from the Branches might be raised to five shillings. He emphasized that this sum would not be asked for from the Branches every year unless it was really required; he also pointed out that in the past the Branches had been asked to pay so small a sum as one shilling per member; on several occasions the Branches had been asked for no payment whatever. In regard to the proposed alteration in the by-law, Dr. Dick submitted a letter from Messrs. Tress and Cocks, solicitors to the Federal Council, in which it was stated that the Federal Council had power to amend the existing by-law by increasing the contribution of the respective Branches. At the same time it had to be recognized that the by-law, neither in its present form nor as proposed to be amended, would be legally enforceable against any Branch. Messrs. Tress and Cocks stated that the proposed new by-law was not in order and detailed the steps that would be necessary to the introduction of such a by-law. After discussion it was resolved that the Branches should be asked for an additional sum of one shilling per member to enable the Honorary Treasurer to meet the liabilities of the Council for the current year. It was also resolved that the preliminary steps necessary to the introduction of the new by-law should be taken before the next meeting of the Federal Council.

Congress Funds.

The Honorary Treasurer asked for authority to open a trust account for the funds of the Australasian Medical Congress (British Medical Association). Unless the congress funds were kept in a separate trust account there might be a temptation to use them in connexion with the affairs of the Federal Council. It was resolved that a trust account should be opened.

Appointment of General Secretary.

At its previous meeting the Federal Council resolved that applications should be called for the position of General Secretary. It was reported that applications had been received. The names were submitted to ballot. Dr. J. G. Hunter was appointed to the position.

It was resolved that the appointment should take effect from October 1, 1934; and Dr. C. H. E. Lawes, the present General Secretary, was asked to continue in office until that date.

Executive Committee of the Federal Council.

Discussion took place on the appointment of an executive committee of the Federal Council; it was resolved that consideration of the question be deferred.

Report of the Federal Council.

A report of the activities of the Federal Council for the previous twelve months was presented in accordance with the Articles of Association.

Medical Officers' Relief Fund (Federal).

The trustees of the Medical Officers' Relief Fund (Federal) presented a report, together with the balance sheet as at June 30, 1934. The trustees expressed concern regarding certain loans, as the promissory notes in connexion with them had not been met. They believed that some of the beneficiaries concerned were in a position to meet their obligations. The trustees asked for an expression of opinion as to the advisability of taking legal steps to recover what was owing. It was suggested that the trustees be advised to invoke the law to deal with recalcitrant debtors. The report and balance sheet of the trustees were adopted.

Retirement of Dr. F. A. Hadley from the Federal Council.

The Secretary reported that Dr. F. A. Hadley, of the Western Australian Branch, had resigned his membership of the Federal Council after fourteen years' service to the Federal Council and the Federal Committee. It was resolved, on the motion of the President, that a letter of appreciation of his long services should be sent to Dr. Hadley.

The Duty on Ethyl Chloride.

A letter was received from the Western Australian Branch, in which it was stated that the duty on the importation of ethyl chloride into Australia was excessive and that in consequence the successful treatment of many patients was being jeopardized. After discussion, in which the prices of imported and Australian-made ethyl chloride were compared, it was resolved that the question should be discussed with the Australian Pharmaceutical Association. Dr. J. Newman Morris, Dr. F. L. Davies and the President were appointed a subcommittee to deal with the matter and with power to act if action should be deemed necessary.

Climatology and Balneology in Australia.

Discussion took place regarding a letter that had been received from Dr. Alfred Cox, General Secretary of the British Health Resorts Association, Limited. Dr. Cox asked for information regarding climatology and balneology. The Secretary reported that he had written to several practitioners in Sydney and had received some information regarding spas in New South Wales. It was resolved that Dr. Cox's letter should be referred to the Branch councils.

Australian Aerial Medical Services.

A communication was received from Australian Aerial Medical Services, forwarding a draft of the Memorandum and Articles of Association and asking the Federal Council to discuss the scheme.

Dr. J. Newman Morris said that the Victorian section of the organization had been incorporated. The movement was no longer a church movement; it was a citizens', a national, enterprise. He pointed out that Victoria had helped largely in the work in the Cloncurry district. An important advance was also soon to be made in north-western Australia. Dr. Morris thought that the Federal Council should approve of the formation of a national service and should offer support.

Dr. D. G. Croll said that in Queensland they all recognized the value of the service to people in outlying areas. There was, however, a possible danger that the establishment of a flying service might result in the withdrawal of medical practitioners from outlying towns. He admitted that any interference with private practitioners had taken place only in the very early days of the service. He thought that the communication from Australian Aerial Medical Services should be sent to the Branches for their consideration. It was resolved that this course should be adopted.

Duty on Liver Extracts.

A letter was received from the South Australian Branch regarding the duty on liver extracts used for intravenous injection. The Branch expressed the view that the duty on these substances was so high that patients who wished to use them were unable to do so on account of the high cost. In discussion it was pointed out that some patients with anemia responded to intravenous injection of liver extract and would respond to no other type of administration. It was resolved that the Secretary should collect information on the subject and present it to the next meeting of the Federal Council.

The Abolition of the Manufacture of Heroin.

The Secretary reported that he had received a communication from the Director-General of Health of the Commonwealth regarding the manufacture of heroin. The Director-General of Health forwarded an account of the efforts of the League of Nations to secure the introduction of legislation for the abolition of the drug on account of habit-forming properties. The Secretary reported that he had referred the matter to the Branches. The New South Wales Branch had replied that it was in favour of abolition. The Victorian Branch was opposed to abolition because the drug possessed special advantages. The South Australian Branch had replied that it left the matter in the hands of its delegates. After discussion it was decided that the Federal Council was not aware of any addiction to the drug in Australia, and on account of the special therapeutic advantages that it possessed the Council was not in favour of its abolition. At the same time the Council would do all in its power to obtain information for the Director-General of Health. It was resolved that the Branches should be asked to help to obtain the information and that the Editor of THE MEDICAL JOURNAL OF AUSTRALIA should be asked to deal with the matter in the editorial columns of the journal.

Presentation of a Koala Specimen to the Parent Association.

The President reported that when he and Dr. Newman Morris were in London they had noted the specimens of fauna from different parts of the world that had been presented to the Parent Association and that were displayed in the common room at headquarters. On his return to Australia he had arranged for a specimen of a koala to be sent to England by the South Australian Branch. He thought that the Branches might like to share in this presentation. It was decided that the Branch Councils should be advised of the gift and be invited, should they so desire, to share the expense.

Annual Meeting of the Association, Melbourne, 1935.

Reference was made to the itinerary of the overseas delegates from England who would be attending the annual meeting of the Association in Melbourne in 1935. It was noted that they would arrive in Sydney from America on September 6 and that they would leave Sydney on their return journey to England on September 19.

Australasian Medical Congress (British Medical Association).

Fifth Session.

The date and place of meeting of the Fifth Session of Congress were discussed. It was resolved, on the motion of Dr. J. Newman Morris, seconded by Dr. George Bell, that the Fifth Session be held in 1937 and that the several Branches should be communicated with, with a view to invitations being given, in accordance with the Congress Regulations.

Revision of By-Laws.

At the previous meeting of the Federal Council Dr. George Bell, Dr. J. Adam Dick, and the General Secretary, Dr. C. H. E. Lawes, were appointed a subcommittee to consider the revision of the regulations governing congresses and to bring forward suggestions to this meeting. The report of the subcommittee was presented. Several of the suggestions of the subcommittee were formal and consequent on the establishment of the Federal Council in place of the Federal Committee.

The subcommittee suggested that the President, Vice-President, and General Secretary of the Federal Council should be *ex officio* members of the Executive Committee of Congress. After discussion this recommendation was accepted with the addition of the delegates to the Federal Council of the Branch Council in the State where the Congress was to be held.

Another suggestion of the subcommittee was that members of other scientific bodies should be eligible for election as members of Congress if elected by the Executive Committee of Congress and approved by the Federal Council. It was explained that this clause was added in view of the suggestion that a Section of Comparative Medicine might be established, for if that occurred it might be thought desirable to have as members of Congress members of the veterinary profession and of the dental profession. Considerable discussion took place in regard to this matter. Some members thought that the requirements would be met if members of other professions were made honorary members. In reply to this it was stated that such members might be numerous and there was no apparent reason why a subscription should not be accepted from them. Another suggestion was that associate members might be appointed. It was finally resolved that the matter should be referred back to the subcommittee for further investigation and report.

The subcommittee also recommended, in regard to the appointment of honorary members, that nominations should be submitted to the Federal Council at least three months before the date of Congress. It was explained that when nomination was left to the last minute, there was no opportunity to investigate the circumstances of the nomination, and hardship might be inflicted on the nominee if the nomination were refused. Such an occasion had, it was stated, arisen. During discussion several members pointed out that it might be necessary at the last moment to offer honorary membership to some distinguished person from overseas. It was resolved to accept the suggestion of the subcommittee with the alteration of the words "three months" to "one month".

Another recommendation of the subcommittee was that the proceedings of each session of congress should terminate with a plenary session at which all resolutions of sections should be submitted for consideration. They added that such resolutions as were approved should be forwarded by the Executive Committee of Congress to the General Secretary of the Federal Council, who should submit them to the various Branch Councils for consideration and report; the resolutions, together with the reports of the Branches, should then be submitted for consideration at the next ensuing meeting of the Federal Council.

Dr. J. Newman Morris said that the proposal was ideal, but that in practice it would be a failure. He thought that very few members of Congress would attend a plenary session at the end of a congress. The few who would attend would know little of what had been done in sections other than their own, and the resolutions would not receive the consideration that they should receive. The resolutions would be passed by a few people and would be promulgated as resolutions of the whole congress. He thought that the present system was preferable.

After discussion it was decided that this recommendation should be sent back to the subcommittee for reconsideration.

A Section of Comparative Medicine.

The Queensland Branch sent a proposal that a Section of Comparative Medicine should be added to the Congress sections.

The President pointed out that it was not the province of the Federal Council to determine the designations of the sections in a session of Congress; that lay with the Executive Committee of Congress.

It was pointed out that an executive committee would not be likely to establish a section for the study of comparative medicine unless the Federal Council had approved of such a course and unless provision existed for membership of persons belonging to other scientific bodies who could contribute to the discussions. If the Federal Council suggested that a Section of Comparative Medicine be formed, the Executive Committee of Congress would probably adopt the suggestion.

It was resolved that this matter should be referred to the subcommittee for consideration.

Congress and the Public Press.

The Federal Council considered two proposals, one from the Queensland Branch and one from the Victorian Branch. The Queensland Branch suggested that a special editorial committee should be appointed to deal with matters submitted to the lay Press at congresses. The Victorian Branch suggested that a censor or a publicity committee should be appointed in connexion with congresses or annual meetings of the British Medical Association in Australia.

These two proposals were discussed together. Several members pointed out that though certain views were published as being the views of one man, the public accepted them as the views of the whole Congress. It was thought that, if possible, divergent views in a matter of public interest should be published.

On being asked what was the present method of dealing with the newspaper reports, the Editor of THE MEDICAL JOURNAL OF AUSTRALIA said that at the request of the Executive Committee of the Fourth Session in Hobart he had undertaken to supply to newspaper reporters matter suitable for publication. His predecessor, the late Henry William Armit, had acted in a similar way in connexion with the Second and Third Sessions. In Hobart he had exercised a heavy censorship and, apart from the papers read at the plenary session devoted to cancer, had given to the public Press only those matters that would be likely to interest the general public. He said that it was always necessary to supply the names of persons reading papers and, further, that any reports given to the newspapers had to be given promptly. If a discussion took place on one afternoon, the newspapers quite rightly would expect to report it in their columns on the following day.

Dr. D. G. Croll said that during the Hobart Congress a leading article had appeared in the Hobart *Mercury* in which it was stated that accounts of papers read at Congress should not be published unless the discussion was published as well.

The Editor of THE MEDICAL JOURNAL OF AUSTRALIA said that it would be quite impossible for him to supply an account of the discussion at a session on the same day on which it had taken place. He had ten or more sections to deal with at one time, and a day or two were needed before an account of one day's discussion could be prepared. He welcomed the suggestion that a censor or editorial committee should be appointed to deal with reports given to the newspapers. Though he was happy to do what he could for the Executive Committee in the

matter, he would be glad to be relieved of what was an onerous and time-consuming task.

It was resolved that the subcommittee should be asked to draft a clause dealing with the matter.

The Delivery of Papers.

The Victorian Branch forwarded a suggestion dealing with the length of time taken for the delivery of papers at congresses.

The President said that the standing orders were clear and only had to be enforced.

One member said that at plenary sessions the president did not like to offend members by enforcing the standing orders. As a matter of fact, the president at any congress was in no mood to enforce standing orders. He was bent on making everyone feel happy and contented. Moreover, he was often a man who had not for some years been in touch with Branch procedure. The suggestion was made that perhaps a member more in touch with rules of procedure should preside at a plenary session once the president had declared the session open, much in the same way as a chairman of committees acted in some of the Branches.

The subcommittee was asked to draft a clause dealing with the enforcement of standing orders.

Membership of Congress.

The Victorian Branch suggested that membership of Congress should be confined strictly to those who were members of the British Medical Association. It was pointed out that provision existed for the election of non-members of the Association as members of Congress. Further, the question of admission to Congress of members of other scientific bodies was under review. It was resolved that no alteration in the present provisions should be made.

An Australian Society of Anaesthetists and an Australian Association of Radiologists.

Two resolutions from sections at the Fourth Session of Congress were considered. The Section of Anaesthesia sent for approval a proposal for the formation of an Australian Society of Anaesthetists; the Section of Radiology proposed the formation of an Australian Association of Radiology.

During the discussion several members deprecated the formation of scientific bodies outside the ranks of the British Medical Association.

The President said that he had always been opposed to the formation of scientific bodies outside the Association; he hoped that as far as possible they would be kept within its ambit.

It was resolved that:

In view of the tendency to the formation of special associations within the profession, a committee of Council be appointed to report to the next meeting of Council on the whole matter. Particular reference in this report should be made to: (a) desirability of such movements, (b) their limitations, (c) model conditions to keep such movements within the ambit of the British Medical Association.

An Inquiry into Rheumatism in Australia.

The following resolution was received from the Section of Medicine of the Fourth Session:

That the Federal Council should consider the advisability of a full and comprehensive inquiry into rheumatism in Australia similar to inquiries that have been conducted in other countries, and also that the subject of rheumatoid arthritis should be fully discussed at the next congress.

In the discussion several members drew attention to the difficulty of undertaking such an investigation and to the expense connected with it; the Federal Council had not funds sufficient for such a purpose. One member said that rheumatism in Australia was no different from rheumatism in other countries. It was resolved that no steps could be taken in the matter.

Care and Treatment of Crippled and Difficult Children.

The following resolution was received from the Section of Pædiatrics of the Fourth Session:

That it be a resolution of this Section of Congress that it is now urgent to provide care and treatment for the crippled and difficult child—in the form of special schools, orthopaedic departments and child clinics.

Dr. A. W. Shugg stated that the Rockefeller Foundation had undertaken to provide the sum of £1,000 a year for three years for the purpose of investigating virus diseases in Australia if someone else would provide a similar sum. The Federal Government had agreed to provide this amount and the Walter and Eliza Hall Institute had already begun some investigations. Dr. Shugg went on to discuss the need for adequate treatment in regard to the issuing of invalid pensions. He referred to the suggestion that it might be possible to make the award of a pension conditional on adequate treatment having been carried out.

It was resolved that a subcommittee should be appointed to go into the question and that it should be asked to pay particular attention to the question of the prevention of crippling.

Dr. A. W. Shugg and Dr. S. Gibson were appointed members of this subcommittee, with power to coopt one member in each State.

It was also decided that the Federal and State Health Departments and the several Branches of the British Medical Association should be informed of the proposed steps.

Infantile Mortality from Diphtheria, Measles and Whooping Cough.

The following resolution was received from the Section of Pædiatrics of the Fourth Session:

That it be a resolution of this Section of Congress that, in view of the relatively high infantile mortality of the pre-school age from diphtheria, measles and whooping cough, medical men throughout the Commonwealth should be urged to do all in their power by immunization and segregation to limit the spread of these diseases.

In the discussion on this resolution the view was expressed that the subject was brought sufficiently to the notice of practitioners in medical journals. The resolution was received.

A Hospital Policy for Australia.

At its meeting in August, 1933, the Federal Council appointed Dr. D. G. Croll and Dr. E. S. Meyers a subcommittee to draw up a report on a proposed hospital policy for the British Medical Association in Australia. The subcommittee presented a progress report which was intended to be merely informative. The report was received.

The Federal Health Council.

At its previous meeting the Federal Council gave consideration to a suggestion that the Federal Council should be allowed to nominate representatives to be appointed to the Federal Health Council. The matter had been referred to the Branches. The information at the disposal of the Federal Council was incomplete and consideration of the matter was deferred.

The Broadcasting of Health Talks.

Further reference was made to the broadcasting of health talks. This matter had been considered at the two previous meetings of the Federal Council. The Postmaster-General had been written to and had been asked to restrict wireless talks on health matters to legally qualified medical practitioners or to persons approved by the Health Department in each State. The Director-General of the Postmaster-General's Department had replied asking for specific instances of broadcasts which the Council considered misleading or harmful. The Council had replied that it was not prepared to give specific instances.

The matter was discussed in view of further information received on the subject, and it was resolved that the attention of the Branches should be drawn to the matter and that they should be asked to note any undesirable features for report to the Federal Council.

Confidential Information and Insurance Companies.

At its last meeting the Federal Council considered the position of a medical practitioner who might be called upon to divulge confidential information given him by a person being examined for life insurance. This matter was first dealt with by the Federal Committee in 1926. At its last meeting the Federal Council determined that legal advice on the matter should be sought. The reply of the solicitors to the Federal Council had been received. The solicitors stated *inter alia* that a medical practitioner could be compelled to divulge confidential information only in a legal procedure or in the course of a judicial inquiry. They thought that in regard to a proponent who was dead information might be divulged because no damage could result to the dead person.

Repatriation Department.

Further reference was made to the agreement entered into between the Federal Committee and the Repatriation Department regarding the medical treatment of widows and orphans of soldiers whose death was due to war service, and of the widowed mothers of such deceased unmarried soldiers. This agreement was made in 1924 and, according to the terms of the agreement, the members of the medical profession had undertaken to treat these widows and orphans through the friendly societies at the rates and under the conditions obtaining in each district. The Federal Council held the view that the only persons entitled to such treatment were those whose names appeared on the original list. The Repatriation Department thought that no such provision had been made and that under certain conditions names might be added to the list. At its last meeting the Federal Council appointed Dr. J. Newman Morris and Dr. F. L. Davies a subcommittee to see the Commissioner in Melbourne and, if necessary, to intimate that the Federal Council contemplated terminating the agreement.

Dr. Morris and Dr. Davies reported that they had interviewed the Commissioner. They quoted figures given by the Department regarding the numbers of names on the list. Dr. Davies said that in consideration of the numbers on the list and of other circumstances it would be a bad policy to terminate the agreement. It was resolved that Dr. Morris and Dr. Davies be thanked for their services and that the conditions should not be altered. The Repatriation Department was to be informed of this decision.

Australian Naval Medical Service.

Further consideration was given to the disabilities under which medical officers of the Royal Australian Navy worked. Recently received information was considered and it was resolved to write to the Minister and to inform him that in the opinion of the Federal Council the disparities between conditions in the Royal Navy and in the Royal Australian Navy had been accentuated.

Transfer of Members of the Association from Overseas Branches.

At the instance of the Queensland Branch consideration was given to the question of the transfer of members of the Association from overseas Branches. Reference was made to a *questionnaire* that had been issued for use between the Branches, and instances were quoted in which the use of the *questionnaire* would have saved the Branches some trouble and unpleasantness. Reference was also made to the disinclination of the Parent Association in 1928 to amend Article 17 of the Articles of Association to enable a Council of an overseas Branch to exercise its discretion in accepting a member of the Association as a member of the Branch when he moved from the area of another Branch. Dr. D. G. Croll undertook to prepare a report on the subject for the Federal Council.

Australasian Pharmaceutical Formulary.

It was noted that a reprint of the Australasian Pharmaceutical Formulary was about to be made. Some alterations and additions were to be made to the book, which was issued under the authority of the Federal Council. The correspondence on the matter was received and it was resolved that congratulations on the success of the book should be sent to Mr. Fennemore, the editor.

An Australian Medical Directory.

Correspondence from Mr. E. G. Knox was read regarding the publication of an Australian Medical Directory. The scheme of the proposed book was explained and replies from the Branches to a letter regarding the advisability of publishing such a book were read. All the Branches except the New South Wales Branch were in favour of the publication of the book on the lines laid down. After discussion it was thought that, provided certain safeguards were adopted, there would be no objection. The publication was approved, the New South Wales delegates voting against the motion. The Editor of THE MEDICAL JOURNAL OF AUSTRALIA was asked, and agreed, to act as censor of the notices appearing about members and of the advertisements.

Newspaper Publicity and the Royal Australasian College of Surgeons.

A letter was read from the South Australian Branch regarding the publicity given in Adelaide newspapers to the recent annual meeting of the Royal Australasian College of Surgeons.

The President said that as the matter concerned him, members of the Council would be freer to discuss it if he were not present. He therefore vacated the chair in favour of the Vice-President, Dr. J. Newman Morris, and temporarily left the meeting.

The South Australian Branch forwarded cuttings from Adelaide papers and suggested that the Royal Australasian College of Surgeons should be informed that it was desirable that matters of professional interest only should not appear in the lay Press. The Branch also suggested that the College should be approached and asked that if public lectures were to be published in the lay Press the interests of the whole profession should be conserved.

The General Secretary said that the South Australian Branch letter had been sent to the several Branches. The New South Wales Branch had replied supporting the South Australian Branch. The Western Australian Branch had also agreed. The Tasmanian Branch had expressed the opinion that the same rules should apply to proceedings of the Royal Australasian College of Surgeons as were applicable to meetings of the British Medical Association.

After discussion it was resolved that the Royal Australasian College of Surgeons should be written to and should be informed of the steps that were proposed regarding the publication of congress proceedings in the lay Press, and that the College should be asked whether it could see its way to adopting similar methods.

A Definition of Blindness.

A letter was received from the Victorian Branch in which it was suggested that the Federal Council should confer with the Federal authorities in regard to a definition of blindness. The matter was discussed and in the course of the discussion Dr. T. A. Price said that it was impossible to give a scientific definition of blindness that would give economic justice.

On the motion of Dr. A. W. Shugg, seconded by Dr. S. Gibson, it was resolved that the matter should be deferred indefinitely or until some government department asked for a definition.

Operation for Sterilization.

A communication was received from the Queensland Branch asking the Federal Council to define the action to be taken by the medical profession in regard to sterilization, both from the ethical and legal standpoints. The General Secretary said that he had referred the matter to the Branches. The New South Wales Branch had replied that if adequate safeguards were assured the operation

should be at least legally possible. The South Australian Branch replied that it was not possible to give an opinion. The Tasmanian Branch expressed the opinion that the operation of sterilization was desirable in suitable cases. The General Secretary was directed to secure for members of the Council copies of a report on sterilization by a departmental committee in England.

Contraceptives.

The New South Wales Branch wrote asking the Federal Council to consider the matter of contraceptives from the medical aspect. After discussion it was decided to write to the Parent Association for information and that in the meantime action should be deferred.

Nomination for Office in the Federal Council.

Dr. D. G. Croll suggested that nominations should be sent in for the various offices of the Federal Council twenty-eight days before the meeting in the early part of the year took place, and that election should be by ballot. He moved a motion to this effect; the motion was carried.

Next Meeting of the Federal Council.

It was resolved that the date and place of the next meeting of the Federal Council should be left in the hands of the President.

Votes of Thanks.

Votes of thanks were accorded to the Council of the New South Wales Branch for providing accommodation for the meeting and for its hospitality, to Dr. C. H. E. Lawes for his services as General Secretary, and to the President for having presided.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Royal North Shore Hospital of Sydney on June 21, 1934. The meeting took the form of a series of clinical demonstrations by members of the honorary staff. Part of this report appeared in the issue of September 8, 1934.

Cholelithiasis.

DR. E. A. R. BLIGH showed a woman, aged seventy years, who was admitted to hospital on April 25, 1934, complaining of pain in the right hypochondrium of six months' duration, and of flatulence for four months.

When the patient's illness began, the attacks of pain came on at varying intervals and lasted for one to two days. The pain was felt at the tip of the right scapula as well as in the right hypochondrium. When the patient's flatulence was severe she had occasionally vomited. Her appetite was poor. She said that she had lost 12.6 kilograms (two stone) in weight in one year.

Examination at the time of the patient's admission to hospital revealed generalized icterus of the skin and conjunctivæ. The abdomen was moderately distended and slight tenderness was present in the epigastrium. On April 27, 1934, Dr. Sear carried out a Graham's test and reported that none of the drug entered the gall-bladder. He thought, from the appearance on the film, that at least two faceted gall-stones were present. On May 3, 1934, Dr. Vickery gave the patient a barium meal. He reported that no six-hour gastric residue was present, but that gastroparesis was pronounced. There was some narrowing of the pyloric antrum, probably due to spasm or adhesions. No organic lesion was detected in the stomach or duodenum.

On May 9, 1934, cholecystostomy was performed under local infiltration anaesthesia, a 0.5% solution of "Plano-caine" being used. The gall-bladder was found to be distended and to contain six faceted stones.

Acute Cholecystitis and Pyelonephrosis.

Dr. Bligh also showed a man, aged forty-four years, who was admitted to hospital on February 12, 1934, complaining of pain in the right hypochondrium of eight days' duration. The pain passed across the epigastrium and was severe. The patient complained of no frequency of micturition or of scalding. Seven weeks before his admission to hospital he had a similar attack of pain, but on this occasion the pain was on the left side; it lasted for several days and the patient passed pus and gravel in the urine. Eighteen months ago the patient had a pyelogram taken at another hospital. At this time he was treated for pyelitis and passed pus and gravel in the urine. He had lost 12.6 kilograms (two stone) in weight during twelve months. He complained of discomfort and flatulence after meals.

On examination acute tenderness was found in the hypochondrium and the muscles were on guard. A tender mass was palpable in this area. The patient's temperature was 38.3° C. (101° F.), his pulse rate was 114 and his respiratory rate 25 in the minute.

On February 16, 1934, an X ray examination revealed over the sacro-iliac joint a shadow in the left ureter that was probably caused by calculus. A faint large shadow was also present in the left renal region. A shadow above the right renal region was thought probably to be due to a gall-stone, but possibly due to a calcified hydatid cyst. An intravenous pyelogram revealed hydronephrosis of the right kidney; there was no secretion by the left kidney.

Ureteric catheterization showed that the left ureter was blocked seven centimetres and the right five centimetres from the bladder. The right ureteric orifice was normal, but the left orifice was congested and a purulent efflux was present.

On February 23, 1934, ureteric catheterization was carried out. On this occasion the hydronephrosis of the right kidney was not tapped and clear urine was obtained. It was found that the left ureter was blocked eight centimetres from the bladder and that turbid fluid passed round the catheter. A Graham's test showed that gall-stones were present and that the gall-bladder was not functioning.

On February 28, 1934, operation was performed. Empyema of the gall-bladder was found. Cholecystostomy was performed and the patient was discharged from the hospital on April 3, 1934.

Pericarditis with Effusion.

Dr. C. W. SINCLAIR showed a male patient, aged thirty-nine years, who was admitted to hospital on May 14, 1934. The patient had had no important illnesses except influenza in July, 1933, but had complained of a feeling of constriction in the chest and of difficulty in breathing on exertion for six weeks. Oedema of the ankles was present for a few days. At the time of admission to hospital the patient was somewhat dyspnoeic, no cyanosis was present, the feet were lightly oedematous. The cardiac dullness extended from 3.75 centimetres (one and a half inches) to the right of the sternum to the mid-axillary line on the left. The heart sounds were inaudible. The pulse rate was 120. The systolic blood pressure was 126 and the diastolic pressure 86 millimetres of mercury. Examination of the lungs revealed a patch of dullness with tubular breathing and pectoriloquy at the angle of the left scapula. Dr. Anderson Stuart made a radiological examination and reported enormous enlargement of the cardiac shadow. He thought that the appearances were suggestive of a large pericardial effusion. Paracentesis of the pericardial sac was attempted, but only blood was obtained. It was thought that the needle penetrated the cavity of the heart.

On May 19, 1934, the apical heart sounds were audible in the middle line. No murmurs were detected. The oedema of the feet had increased. On May 21 the oedema was spreading up both legs and was present in the lower part of the back.

On May 24, 1934, another X ray examination was made and Dr. Sear reported that the appearances were suggestive of a large pericardial effusion.

On May 30, 1934, a loud friction rub was present over the apical area; this lasted for three days. Some crepitations were audible at the bases of both lungs.

On June 7, 1934, X ray examination showed that the fluid had disappeared, though the cardiac shadow was still large. The oedema of the back of the legs was much less. A few days later the oedema completely disappeared. Dr. Sinclair said that at no stage had any cardiac murmurs been detected and that two unsuccessful attempts had been made to culture organisms from the blood.

On June 2, 1934, a blood count was made with the following results:

Erythrocytes, per cubic millimetre	3,965,000
Hæmoglobin value	75%
Colour index	0.96
Leucocytes, per cubic millimetre	6,700
Old metamyelocytes	6.5%
Nuclear neutrophile cells	59%
Lymphocytes	16.5%
Eosinophile cells	1.5%
Monocytes	16.5%

No basophile cells were found in the blood film. The Wassermann test and the Kahn test gave no reaction. The teeth and tonsils appeared healthy. Throughout the course of the illness the urine contained neither sugar nor albumin. The temperature chart was irregular, showing a daily maximum varying from 37.2° to 38.1° C. (99° to 100.6° F.). On the patient's admission to hospital the pulse rate varied from 120 to 130; at the time of the meeting it ranged from 100 to 110.

Rheumatic Carditis with Massive Pulmonary Collapse.

Dr. A. J. HOOD STOBO showed a female patient, aged thirty-two years, whom he had first seen one year previously suffering from breathlessness. The patient gave a history of suffering from rheumatic carditis in childhood. She had an attack of "pleurisy and bronchitis" seven years ago. She underwent an operation of thoracotomy four years ago. At another hospital, one year before being seen by Dr. Stobo, the patient had been diagnosed as suffering from pulmonary tuberculosis and an unsuccessful attempt had been made to induce artificial pneumothorax.

The patient exhibited signs of frank mitral stenosis. An X ray examination of the chest revealed a suspicious shadow in the middle zone of the left lung, but there were no physical signs and no tubercle bacilli were found in the sputum.

On January 31, 1934, the patient suddenly complained of a cold. Her temperature was 39.1° C. (102.4° F.), her pulse rate was 136 in the minute and physical signs of pneumonic consolidation were present over the lower half of the left lung. X ray examination showed that the left side of the thorax was quite opaque and that the heart, mediastinum and trachea were displaced towards the left. Dr. Stobo pointed out that these signs had been present practically unchanged for the last five months.

Fracture of the Patella.

Dr. S. H. SCOUGALL, Dr. A. R. HAMILTON and Dr. A. L. DUCKER showed a woman, aged forty-four years, who, on November 14, 1933, had sustained a fracture of the patella by indirect violence. On X ray examination separation of the fragments of six millimetres was found.

The operation described by Ober was carried out. It was explained that in this operation the incision was started 10.0 or 12.5 centimetres (four or five inches) above the patella in the mid-line of the thigh. As the incision approached the patella it was swung medially to it and was then carried back to the *ligamentum patella*. The tendon of the *quadriceps extensor femoris* muscle, the aponeurosis of the patella and the *ligamentum patella* were exposed. From the quadriceps tendon there was split off transversely from above downward to the superior border of the patella a four-inch flap, the lower end of which was not divided. The flap was split longitudinally, two strong strands of tendon being provided; the strands were about a quarter of an inch wide. The patella was drilled from above downward with a quarter-inch drill medial and lateral to each strand. A tendon strip was passed through each drill hole. The protruding ends were sutured to each other and to the scarified *ligamentum patella*.

After the progress of the patient was described it was pointed out that the technique of the Ober operation would not necessarily be suited to cases in which the patella was comminuted, and that the great strength of the initial fixation allowed earlier active movements to be undertaken with safety.

Urethral Stricture.

DR. R. J. SILVERTON showed a specimen of actual tissue that had caused urethral stricture in a man aged thirty years. The stricture was a traumatic stricture of the bulbous urethra, which narrowed down until not even the finest filiform bougie could be passed. Operation was performed in the perineum after Hugh Young's conservative excision technique. The two pieces of fibrous tissue shown were the actual hard nodules which caused the narrowing of the canal. The urethra in front of the stricture was incised on a Wheelhouse staff and the face of the stricture was exposed. The opening through the stricture was found by massaging the prostate and inserting a probe where a drop of fluid exuded. The stricture was incised longitudinally and the dilated urethra behind it was also incised longitudinally. The strictured portion of the canal was now seen as a very narrow strip bordered by two elongated nodules of fibrous tissue which actually constituted the stricture. The nodules were carefully dissected away and no mucous membrane at all was removed. The mucosa in front of the stricture was sutured to that behind it so as to leave a broad continuous dorsal ribbon of mucosa, which was also partly closed in on each side around a rubber catheter, the perineal surface being left open. Dr. Silvertton said that the result was invariably excellent.

Telangiectases of the Renal Pelvis.

Dr. Silvertton also showed a woman, aged seventy-six years, who had been ill for one week with severe hæmaturia and pain in the left loin. Urgent nephrectomy had to be done as a life-saving measure. The specimen showed appearances like telangiectases of the mucosa of the renal pelvis, but microscopy proved the whole condition to be the result of an extremely acute infection (pyelonephritis). The patient's recovery was good and she had remained well since the operation four months ago.

Hypernephroma of the Kidney.

Dr. Silvertton also showed a kidney that had been removed from a male patient, aged fifty-five years. The patient had suffered from pain in the right loin and from hæmaturia for two months only, and yet an enormous tumour in the right loin was discovered. It was diagnosed from pyelographic appearances as a renal tumour. The specimen was a typical hypernephroma, involving the middle and the upper pole of the right kidney.

Hydronephrosis.

Dr. Silvertton showed a specimen removed from a male patient, aged thirty-one years. The patient had given a five months' history of frequency of urination and a three months' history of pain in the right loin. The specimen showed permanent kinking of the ureter near the ureteropelvic junction; the kinking was caused by external bands.

Another specimen shown by Dr. Silvertton was removed from a female patient, aged thirty-eight years. She had given a two months' history of pain in the right loin with frequency of urination. The specimen showed permanent kinking of the upper portion of the ureter by extra-ureteric adhesions.

Thrombosis of the Lateral Sinus.

DR. E. P. BLASHKI showed a girl, aged eleven years, who had been admitted to hospital on August 10, 1933, with a history of a left ear discharging for eight years. The patient gave a history of headaches.

On examination a discharge from the left ear was found with a high posterior perforation of the left drum. On August 11, 1933, a left radical mastoid operation was performed. The mastoid cells and ossicles were removed.

The lateral sinus, while being exposed, was opened, but bleeding was controlled with gauze packing. The patient's temperature was normal for eleven days after the operation.

On August 23, 1933, the twelfth-day after operation, the patient had a rigor with a temperature of 41° C. (105.8° F.), severe headache and right facial paresis. The cerebrospinal fluid was under increased pressure; its cells and composition were normal.

At a second operation the wound was enlarged and a large area of *dura mater* was exposed over the temporal lobe as a decompression. The lateral sinus was not thrombosed and bled freely.

On August 24, 1933, the patient had a rigor with a temperature of 40.7° C. (105.4° F.).

On August 25, 1933, a third operation was performed; the lateral sinus was widely opened and bled freely.

On August 26, 1933, headache and neck rigidity were present. The pupils and knee jerks were normal. Kernig's sign was not present.

On August 27, 1933, the wound was dressed and the sinus bled freely. For the next ten days the temperature ranged from 36.7° to 38.3° C. (98° to 101° F.), falling by lysis on September 7, 1933. Thereafter the temperature was normal, the wound healed and the child was discharged from hospital on October 10, 1933.

On October 31, 1933, the child had had several attacks of diplopia lasting a few minutes. Marked bilateral papilloedema was present. Visual acuity was unimpaired. The child was well, with no other symptoms.

On January 18, 1934, the optic disks were almost normal.

On May 21, 1934, the papilloedema had practically subsided.

DR. E. P. BLASHKI and DR. A. L. CLOWES showed a boy, aged eleven years, who was admitted to hospital on February 12, 1934, with acute mastoiditis and a temperature of 38.3° C. (101° F.). He had pain and tenderness over the mastoid and a discharging right ear. Simple mastoidotomy was performed. On February 24, 1934, the patient was well and was discharged to the out-patient department.

On February 26, 1934, secondary hæmorrhage from the lateral sinus occurred while the dressing was being changed. The patient was readmitted to hospital. Two days later he commenced to run a hectic temperature. This continued till April 2, 1934.

On April 2, 1934, right frontal headache with vomiting and nystagmus was present. The patient had generalized twitching of the limbs for two hours. The fundi were normal. Blood culture was sterile.

At operation portion of the internal jugular and common facial veins was ligated and resected. The mastoid wound was reopened. Necrotic bone was found round the sinus and removed, the sinus being freely exposed and incised. A large clot was removed; free bleeding occurred posteriorly, but little below. The dura was exposed and seemed normal.

The temperature became normal on the day of operation and remained normal until May 10, 1934, when the patient was discharged. The wound healed gradually, aided by secondary suture. The neck wound was septic, but healed completely.

Dr. Blashki and Dr. Clowes also showed a boy, aged fourteen years, who gave a history of previous attacks of acute suppurative *otitis media* for five years. He had bilateral earache for three weeks and a "cold" and general malaise for two weeks. For one week the right ear had been discharging, and since then the patient had been profoundly ill with malaise, anorexia, vomiting and fever. No rigors occurred.

On July 27, 1933, the patient was admitted to hospital with a temperature of 39.7° C. (103.6° F.) and a pulse rate of 136. He manifested signs of severe toxæmia. The right pinna was displaced with œdema and acute tenderness over the right mastoid. The ear drum and posterior meatal wall were red and bulging. Immediate operation was performed.

At operation subperiosteal abscess, acute suppurative mastoiditis, perisinus abscess and lateral sinus thrombosis were found. Simple mastoidotomy was performed, the lateral sinus and the dura being exposed. The sinus was

yellow and necrotic for about 2.5 centimetres (one inch), and before it was opened the right jugular vein was ligated in the neck above and below its junction with the common facial vein, which was also tied. On incising the necrotic lateral sinus a mural clot was found and free bleeding occurred.

On July 31, 1933, four days later, the temperature was still hectic, and at operation left simple mastoidotomy (on the other side) was performed. Sero-pus was found in the mastoid cells.

For the next eight days the temperature ranged from 37.2° to 39.4° C. (99° to 103° F.), the patient was extremely pale, weak and lethargic. The red blood count was 3,000,000 cells per cubic millimetre, and the haemoglobin value was 50%. The blood was typed for transfusion. However, on July 8, 1933 (the twelfth day), the temperature fell to 37.2° C. (99° F.) and his condition steadily improved, though for two weeks the temperature ranged from normal to 37.8° C. (100° F.). Thereafter the temperature was normal and the patient was discharged to the out-patient department on September 19, 1933, the left side being quite healed and the right side nearly healed.

DR. A. L. CLOWES showed a boy, aged ten years, who was admitted to hospital on April 12, 1934. He had discharging ears for two years, more severely in the right ear. The child was deaf and very pale. A radical mastoid operation was performed. A normal dura and lateral sinus were exposed.

On April 20, 1934, the child was well. The temperature was normal for one week. The dressing was changed under anaesthesia. For the next three weeks the patient had hectic fever. The urine and cerebro-spinal fluid were normal. Blood culture was sterile.

On April 25, 1934, the mastoid wound was reopened. Granulations were curetted away. The lateral sinus was further exposed; it seemed normal. It was incised and bled freely. The right internal jugular and common facial veins were ligated.

On April 30, 1934, no nervous or meningitic signs were present. The optic fundi were normal.

On May 10, 1934, fever subsided by lysis. The child was exceedingly pale. The temperature remained normal for two weeks. The wound was healing slowly. The wound in the neck was septic.

Subsequently the child contracted diphtheria, from which he recovered. Tonsillectomy was subsequently performed.

Correspondence.

PRACTICAL COURSE IN ANÆSTHESIA.

SIR: The Honorary Staff of the Alfred Hospital, Prahran, Melbourne, offers to any member interested in anæsthesia facilities for a short practical course of training in the newer methods. Any member desiring to take advantage of this should communicate with the Medical Superintendent, Alfred Hospital.

Yours, etc.,

DOUGLAS G. RENTON, M.B., B.S.,
Representative for Anæsthetists.

The Alfred Hospital,
Melbourne,
September 6, 1934.

THE MORTALITY IN APPENDICITIS.

SIR: One of Dr. Smalpage's arguments in favour of the use of drainage tubes in the treatment of peritonitis is that this procedure is "universally accepted".

Universal acceptance of a method of treatment or of a theory is not a scientific criterion of its worth—it was once "universally accepted" that the earth was flat. It is apparently useless for me to try to convince Dr. Smalpage that a drain tube does not drain the peritoneal cavity in peritonitis and that it is impossible to introduce

through a drain tube any fluid except in the immediate neighbourhood of the tube. Our conceptions of the pathology of peritonitis and of the physics of the peritoneal cavity are apparently different and irreconcilable.

I am interested to hear that Dr. Smalpage has a specific serum for the toxins of peritonitis. Presumably its specificity has been proved by animal experimentation and other means. But why not introduce it by subcutaneous, intramuscular or intravenous channels which have been proved to be efficacious in connexion with other specific sera?

Yours, etc.,

A. J. TRINCA.

12, Collins Street,
Melbourne,
September 5, 1934.

University Intelligence.

THE BEATTIE-SMITH LECTURES FOR 1934.

THE Registrar of the University of Melbourne announces that the Beattie-Smith Lectures for 1934 will be delivered by Dr. Charles I. McLaren, of Severance Union Medical College, Korea, at the Anatomy School of the University of Melbourne, on October 2 and 9, 1934. The subject of the lectures will be: "An Approach to the Understanding and Treatment of the Psychoneuroses and the Psychoses."

Obituary.

ROBERT THOMSON PATON.

WE regret to announce the death of Dr. Robert Thomson Paton, which occurred on September 7, 1934, at Sydney, New South Wales.

FRANCIS VICTOR McADAM.

WE regret to announce the death of Dr. Francis Victor McAdam, which occurred on September 10, 1934, at Sydney, New South Wales.

Books Received.

TUBERCULOSIS IN THE CHILD AND THE ADULT: A DISCUSSION OF PATHOLOGIC ANATOMY, PATHOLOGIC PHYSIOLOGY, IMMUNOLOGY, DIAGNOSIS AND TREATMENT, by F. M. Pottenger, A.M., M.D., LL.D., F.A.C.P.; 1934. St. Louis: The C. V. Mosby Company; Australia: W. Ramsay. Royal 8vo., pp. 611, with illustrations. Price: 52s. net.

SURGERY OF A GENERAL PRACTICE, by A. E. Hertzler, M.D., and V. E. Chesky, M.D.; 1934. St. Louis: The C. V. Mosby Company; Australia: W. Ramsay. Royal 8vo., pp. 602, with illustrations. Price: 60s. net.

THE MANAGEMENT OF FRACTURES, DISLOCATIONS AND SPRAINS, by J. A. Key, B.S., M.D., and H. E. Conwell, M.D., F.A.C.S.; 1934. St. Louis: The C. V. Mosby Company; Australia: W. Ramsay. Super Royal 8vo., pp. 1164, with 1165 illustrations. Price: 90s. net.

ANNALS OF ROENTGENOLOGY: A SERIES OF MONOGRAPHIC ATLASES, edited by J. T. Case; Volume XVI: Foreign Body in Air and Food Passages, by Chevallier Jackson, M.D., and Chevallier L. Jackson, M.D.; 1934. New York: Paul B. Hoeber. Demy 4to., pp. 285. Price: \$12.00 net.

ANNALS OF THE PICKETT-THOMSON RESEARCH LABORATORY; Monograph XVI, Part II: Influenza, by D. Thomson and R. Thomson; 1934. London: Baillière, Tindall and Cox. Demy 8vo., pp. 935. Price: £3 3s. net.

ACUTE OTITIS AND MASTOIDITIS IN GENERAL PRACTICE: A MANUAL FOR PRACTITIONERS AND STUDENTS, by N. Asherson, M.A., M.B., B.S., F.R.C.S.; 1934. London: H. K. Lewis and Company, Limited. Crown 8vo., pp. 328, with illustrations. Price: 10s. 6d. net.

Diary for the Month.

SEPT. 18.—Tasmanian Branch, B.M.A.: Council.
 SEPT. 18.—New South Wales Branch, B.M.A.: Ethics Committee.
 SEPT. 19.—Western Australian Branch, B.M.A.: Branch.
 SEPT. 19.—Victorian Branch, B.M.A.: Clinical Meeting.
 SEPT. 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
 SEPT. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 SEPT. 26.—Victorian Branch, B.M.A.: Council.
 SEPT. 27.—South Australian Branch, B.M.A.: Branch.
 SEPT. 27.—New South Wales Branch, B.M.A.: Branch.
 SEPT. 28.—Queensland Branch, B.M.A.: Council.
 SEPT. 28.—New South Wales Branch, B.M.A.: Annual Meeting of Delegates of the Affiliated Local Associations of Members with the Council.

Medical Appointments.

Dr. S. B. Forgan has been reappointed a Member of the Medical Board of Port Pirie, South Australia, under the provisions of the *Workmen's Compensation Act, 1932*.

Dr. W. E. Audley (B.M.A.) has been appointed a Senior Medical Officer, Department of Mental Hospitals, New South Wales.

Dr. J. J. Holland (B.M.A.) has been appointed a Member of the Visiting and Advisory Committee of Perth Hospital, Western Australia, under Section 25 of *The Hospitals Act, 1927*.

Dr. E. A. Richards (B.M.A.) has been appointed Government Medical Officer, in accordance with the provisions of Section 7 of *The Mine Workers' Relief Act, 1932*, Western Australia.

Dr. A. L. Cooper (B.M.A.) has been appointed Medical Officer, Department of Mental Hospitals, New South Wales.

Dr. D. O. Shiels has been appointed Chairman of the Medical Board constituted by *The Workers' Compensation (Lead Poisoning, Mount Isa) Act of 1933*, Queensland.

Dr. Paul Jones (B.M.A.) has been appointed, pursuant to the provisions of the *Workers' Compensation Act, 1928*, to be a Certifying Medical Practitioner at Melbourne, Victoria.

Dr. J. H. Abbott (B.M.A.) has been appointed Medical Officer, Office of the Director-General of Public Health, New South Wales.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xiii, xiv, xv.

BOONAH GENERAL AND MATERNITY HOSPITAL, BOONAH, QUEENSLAND: Resident Medical Superintendent.
 CHILDREN'S HOSPITAL (INCORPORATED), PERTH, WESTERN AUSTRALIA: Junior Resident Medical Officers.
 COMMONWEALTH OF AUSTRALIA: Medical Officer.
 LAUNCESTON PUBLIC HOSPITAL, LAUNCESTON, TASMANIA: Resident Medical Officers.
 MATER MISERICORDIÆ CHILDREN'S HOSPITAL, BRISBANE, QUEENSLAND: Resident Medical Officer.
 MATER MISERICORDIÆ PUBLIC AND CHILDREN'S HOSPITALS, BRISBANE, QUEENSLAND: Resident Medical Officers.
 MOSSMAN HOSPITALS BOARD, MOSSMAN, NORTH QUEENSLAND: Medical Superintendent.
 PERTH HOSPITAL, PERTH, WESTERN AUSTRALIA: Resident Medical Officers.
 ROCKHAMPTON HOSPITALS BOARD, ROCKHAMPTON, QUEENSLAND: Resident Medical Officer.
 SAINT VINCENT'S HOSPITAL, MELBOURNE, VICTORIA: Honorary Officers.
 THE EASTERN SUBURBS HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Officers.
 TOOWOOMBA HOSPITALS BOARD, TOOWOOMBA, QUEENSLAND: Resident Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing. Lower Burdekin District Hospital, Ayr.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	Combined Friendly Societies, Clarendon and Kangarilla districts. Office of Health, District Council of Elliston. All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

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All communications should be addressed to "The Editor", THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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